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INDUSTRY SITTIN' PRETTY AT ATLANTIC CITY

As Best Year Closes, 250 Mfrs. Offer New Lines To Make '56 Even Greater

ATLANTIC CITY, N. J.—With 1955 marked up as the industry's greatest year, 9th Exposition of the Air Conditioning and Refrigeration Industry opens Monday, Nov. 28 for four days of what some 250 exhibitors believe will prove to 15,000 or more sellers, buyers, installers, and servicers of the industry's products that "they hadn't seen nothing yet" before they came to this Show.

With every indication of a continuing high level of prosperity, and practically every section of the industry experiencing sales increases beyond those experienced by business generally, manufacturers will trot out new and improved products to attract more buyers, or to provide better and faster installation and servicing of the industry's many types of products.

The 9th Exposition is the greatest in the history of the event, with exhibit space a third greater than any previous Show, reports F. G. Coggin, chairman of the Exposition Committee of the Air Conditioning & Refrigeration Institute, the sponsoring

(Concluded on Page 4, Col. 3)

SHOW FACTS IN BRIEF

Place: Atlantic City Auditorium.
Show Hours:

Monday, Nov. 28
2 p.m. to 10 p.m.

Tuesday, Nov. 29
10 a.m. to 6 p.m.

Wednesday, Nov. 30
10 a.m. to 6 p.m.

Thursday, Dec. 1
10 a.m. to 4 p.m.

(See page 32 for Master Program of Events in connection with the Exposition.)

NAHB Meets in January

CHICAGO — Annual convention-exposition of the National Association of Home Builders, in Chicago Jan. 22-26, will be spread over three sites.

It will occupy the Chicago Coliseum in addition to the Conrad Hilton and Sherman hotels, where the event has been held in the past few years.

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Important 1956 Projections
What's the 10-Year Future for Home Air Conditioning?
Here's a Man We All Could Envy
How To Hear Football
Postscript
Height of Frustration
Philosophy for Everyone
Last Laughs

Stories of the Week

Wham! Auto accident. Noisy. Farmer Brown rushed out to the highway, where he found a nervous but unhurt city feller sadly surveying the wreckage.

"A cow boomed up in front of me," the motorist panted.

Suspecting that the errant bovine was one of his herd, Brown queried:

"Was it a Jersey cow?"

"Frankly, I didn't see the license plate," expostulated the motorist.

The 1955 Duke university football team surprised favored Ohio State. Alibied Columbus coach Woody Hayes:

"Those southerners imagined we were a Union Army, and re-won the Civil War."

Sign in the men's room of a Huntington, Indiana, filling station:

"We know you didn't stop to buy gas, but you're not going to be a heel, are you?"

"Mac fell into the lake last night.

"Was he drowned?"

"No. But he was sadly diluted."

"Thought you said there was something about me you liked, Marie."

"There was. But you spent it."

"You asked for the truth," graved Doc Kandid. "Brace yourself. I can do nothing more for you."

"Oh yes you can. Recommend another doctor."

Important 1956 Projections

Judging by orders already placed with key component suppliers, the following predictions about the output of specialized

(Concluded on Page 12, Col. 1)

Low Temp Cases Big Gainers In Commercial Line

CHICAGO — Open-type low temperature display cases continued to register impressive gains in the first nine months of 1955, according to percentage ratios for sales of various types of commercial refrigerator products in that period to total sales of all such products as reported to the Commercial Refrigerator Manufacturers Association.

The data also revealed slight increases for open multiple deck cases; open, single-duty vegetable cases, upright freezers, and walk-in coolers.

At its annual Fall meeting this month a panel of CRMA members took a collective look at 1956 sales indications and pronounced them "good—but" the reservation being that while sales next year should match or slightly exceed the industry's indicated record-breaking performance in 1955, profit margins may be seriously threatened by expected further increases in labor and materials costs.

It was agreed that the demand for frozen food equipment should continue to show a more rapid rate of growth than

(Concluded on Back Page, Col. 1)

Finance Charges Are on Way Up

NEW YORK CITY—Officials of Commercial Credit Corp. and C.I.T. Corp. have been quoted as stating that they are increasing their finance charges "on a territorial basis."

This came out after General Motors Acceptance Corp. had announced that it would shortly raise its financing charge 50 cents per $100 (of unpaid balance).

This action of raising financ-

(Concluded on Page 4, Col. 1)

2 New 'Vornado' Room Unit Lines

WICHITA, Kan. — Two distinct lines of 1956 "Vornado" window air conditioners—"Custom" and "Deluxe"—featuring lower prices, new designs, engineering improvements, increased capacities, and "step-up" selling possibilities were shown to distributors at a two-day meeting held here recently by the O. A. Sutton Corp.

The company also unveiled a new ½-hp. casement window model that operates with the regular 110-volt household current.

The company said the 1956 line is the most versatile it has developed and the units are "the

(Concluded on Page 69, Col. 1)

'56 Construction Seen Better Than Record of '55

WASHINGTON, D. C. — Government agencies here predict that new construction of all types will hit a record expenditure of $44 billion next year, although they estimate the total number of housing starts may fall slightly below the '55 total.

However, although fewer houses may be built in 1956, the total value is expected to remain close to this year's $16 billion level, government experts saying the difference will be made up in a continuing trend toward larger houses with more features. (Thus actually point-

(Concluded on Page 4, Col. 5)

RACCA Proposes California Regulate Dairy 'Giveaways'

SACRAMENTO, Calif.—"Proposed Rules and Regulations of the Director of Agriculture of the State of California," pertaining to unfair practices in the marketing of milk and other dairy products, are being promoted by the Refrigeration & Air Conditioning Contractors Association of Northern California.

The California executive secretary reported that these rules and regulations, under Chapters 16 and 17 of the state agricultural code, will become law within 60 to 90 days.

It is proposed that present "Group 3" and "Group 4" be repealed and "Group 3, Unfair Practices" be added. Among other things, the proposals would prohibit or restrict certain activities by distributors of

(Concluded on Page 22, Col. 1)

Wanna Win Auto Cooler?

ATLANTIC CITY — Want to win an automobile air conditioner absolutely free?

Peerless of America (booth 130 at the Exposition) will present an Arctic Air auto air conditioner to a lucky ticket holder Dec. 1, 3:00 p.m., at its booth.

To obtain tickets for this drawing, visit the Peerless booth prior to that time. Lucky ticket will be drawn by George F. Taubeneck, Editor and Publisher of AIR CONDITIONING & REFRIGERATION NEWS.

DON'T MISS . . .

Predictions of Future Air Conditioning
"Inside Dope" Gives Some 1956 Air Conditioning Sales Estimates and Offers a 10-Year Projection For Possible Residential Air Conditioning Sales.. 12
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Interview with H. M. Brundage Tells of Progress, Expected Growth of Market..... 74

To Be SURE of Satisfaction

Be SURE to Specify

READING COPPER TUBING

FOR REFRIGERATION & AIR CONDITIONING EQUIPMENT

READING COPPER TUBE

READING TUBE CORPORATION
EMPIRE STATE BUILDING NEW YORK 1, N. Y.
WORKS: READING, PA.

Steveco, Inc. Announces Purchase of Silco, Inc.

ATLANTA, Ga.—The Steveco, Inc. here, distributor of replacement condenser fan motors and accessories, announces a further expansion of their national operation through acquiring the entire inventory of condenser fan motors and accessories from Silco, Inc., Nashville, Tenn.

Steveco is the largest national distributor of this line of motors to refrigeration parts wholesalers in the U. S. Announcement of the acquisition was made by O. E. Stevens, president of Steveco.

Thermador Names Dauphin

LOS ANGELES — Norris-Thermador announces the appointment of Dauphin Electrical Supplies Co., Harrisburg, Pa. as its exclusive distributor in 18 counties in central Pennsylvania. The firm will distribute Thermador "Bilt-in" electric ranges and Thermador console electric ranges, hot water heaters, and air heaters.

Cool, Man, Cool!

TWO WAYS to keep cool—man's and nature's—are illustrated by this Gibson central air conditioning unit and curvaceous Jaci Johnson, snapped beside the pool at the New Frontier hotel in Las Vegas, Nev. Miss Johnson and other members of the hotel show cast helped Gibson Refrigerator Co. officials introduce the new air conditioner to the firm's distributors during their annual sales meeting at the desert resort.

Wholesalers Lauded At Kinetic Meeting

WILMINGTON, Del—National distributors of "Freon" refrigerants recently wound up a two-day discussion of new products and sales developments here with officials of Du Pont Co.'s Kinetic Chemicals Div.

Representatives of more than a dozen equipment manufacturers who act as distributors for the company's products attended the first day's meeting, highlighted by a luncheon address by Starr Hull, executive secretary of the Air Conditioning & Refrigeration Wholesalers.

Samuel Lenher, a vice president of Du Pont, addressed the group informally at the closing dinner session.

Round table discussions on sales problems occupied at least two of the sessions.

In addition to sales officials of Kinetic Chemicals, panelists during the two days included J. L. Rosenmiller of York Corp., L. C. McKesson of Ansul Chemical Co., R. H. Israel of Virginia Smelting Co., and S. R. Nusbaum of Pennsylvania Engineering Co.

Hull hailed refrigeration wholesalers as one of the most important factors behind rapid growth of the refrigeration industry and acceptance of its products by the general public.

"The wholesaler has been the 'key' that enabled our industry to really service the public and to sell its products at a realistic price to the consumer," he declared.

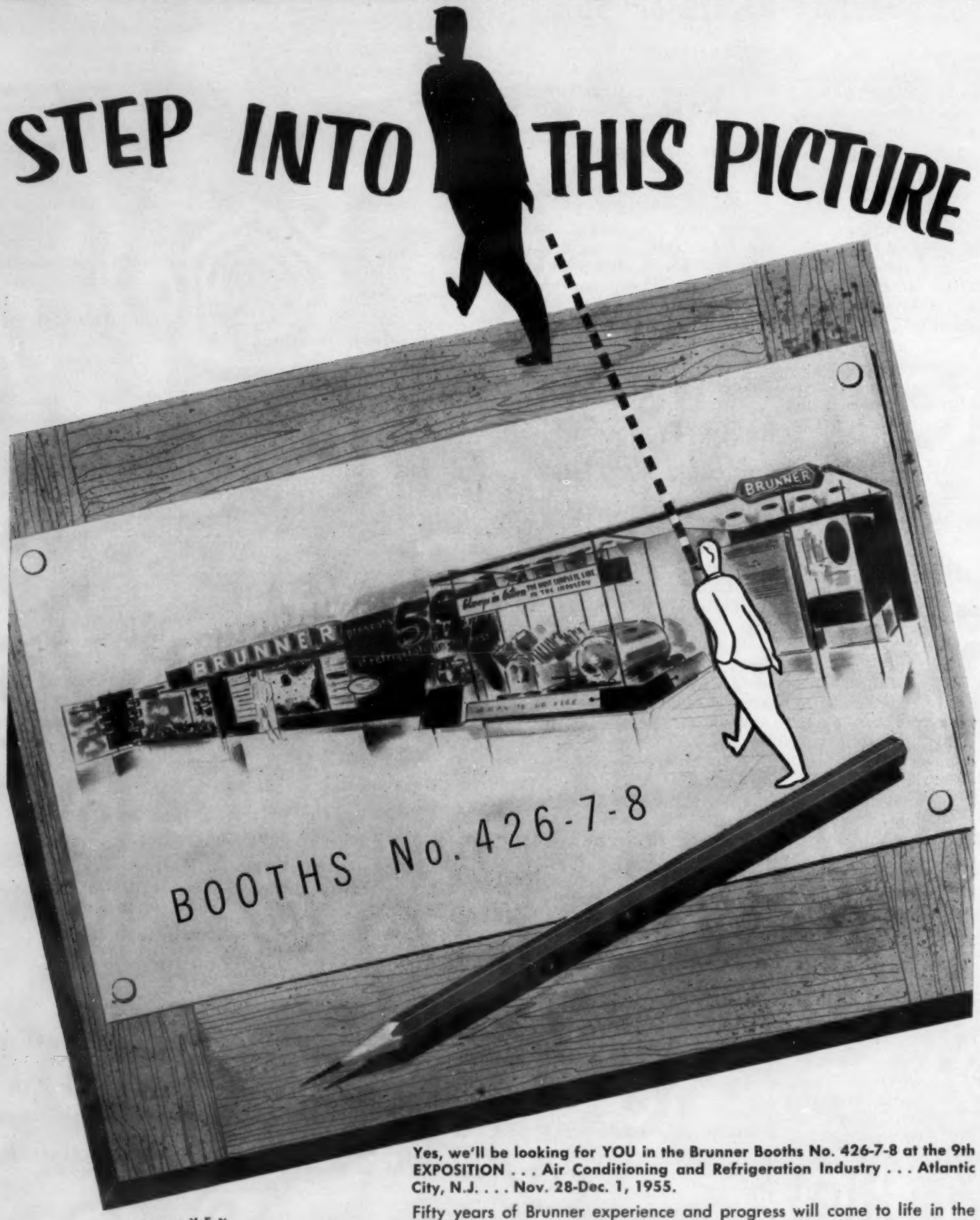
Hull pointed out that more than 90% of all goods sold in the United States go through the process of wholesaling somewhere in the distribution plan and added:

Noting that the wholesaler's function too often is "taken for granted," Hull credited him with relieving the equipment manufacturer of market risks and reducing the latter's warehousing problems.

"The wholesaler," he explained, "makes it unnecessary for manufacturers to assume costly fixed investment of direct sales branches or to carry a large staff of salesmen."

"Manufacturers of component parts find that the 8 to 48% of the total of their sales which are to wholesalers have a steadying influence on production which is a factor in keeping the cost of their products realistic."

STEP INTO THIS PICTURE



Yes, we'll be looking for YOU in the Brunner Booths No. 426-7-8 at the 9th EXPOSITION . . . Air Conditioning and Refrigeration Industry . . . Atlantic City, N.J. . . . Nov. 28-Dec. 1, 1955.

Fifty years of Brunner experience and progress will come to life in the dramatic display shown here in sketch form.

Come in and get the latest information on our complete line of open-type and semi-hermetic condensing units for refrigeration and air conditioning.

Learn why Brunner's "product-service package" is your most profitable, most dependable buy in 1956!

PROVEN QUALITY 50th Anniversary BRUNNER SINCE 1906 DEPENDABLE

BRUNNER MANUFACTURING CO. • UTICA, NEW YORK
The Brunner Co., Gainesville, Ga.
In Canada: Brunner Corp. (Canada) Limited, Toronto, Ontario

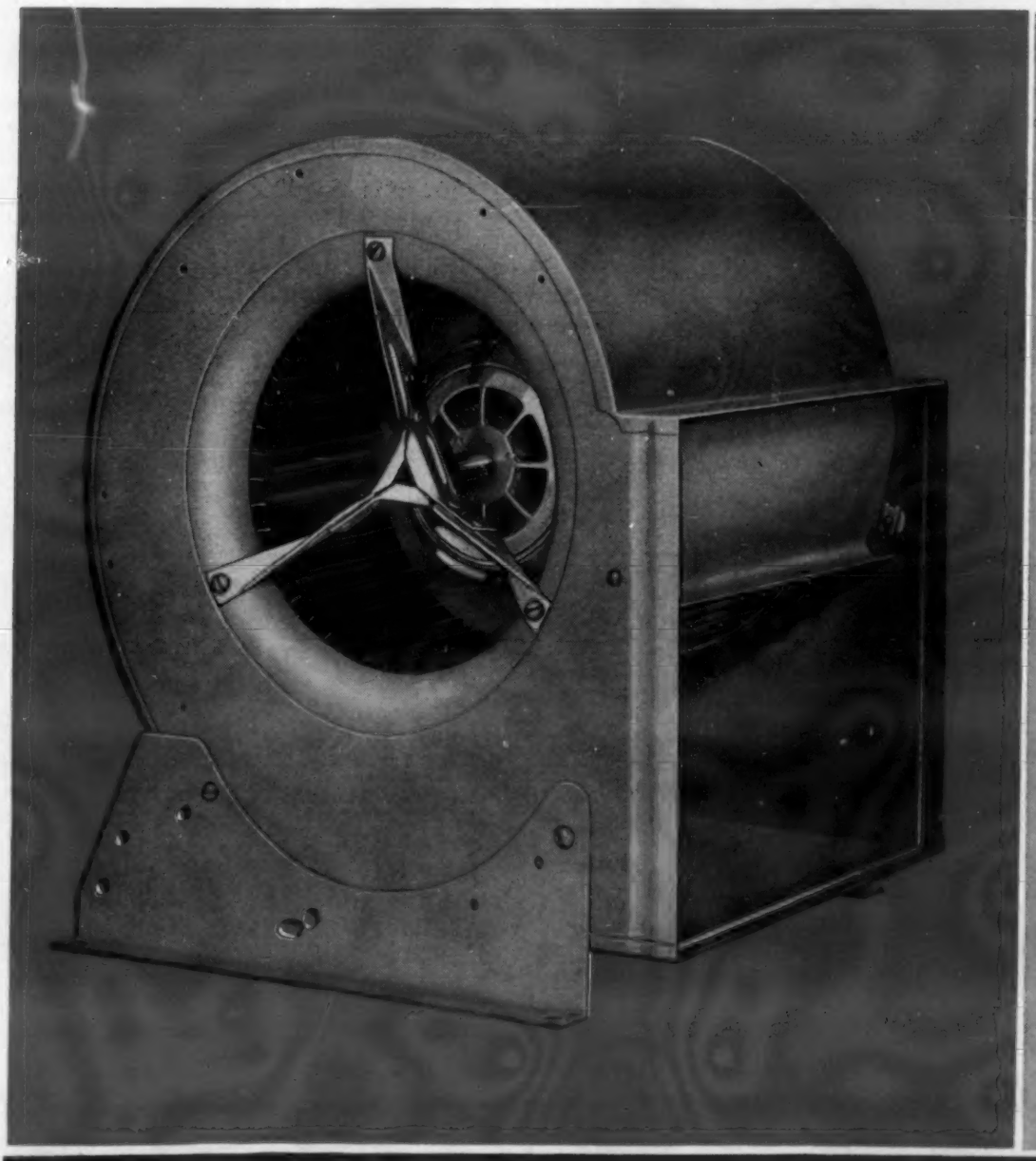
For more information about products advertised on this page use Information Center, page 54.

LAU®

SETS THE PACE

Another Outstanding Development in the Blower Industry

the all new *ELECTRO-WHEEL BLOWER



Here is a typical example of LAU leadership in blowers. For years we have seen the industry's need for a direct drive blower that will deliver *more air* with *less power load*. This is our answer: the ELECTRO-WHEEL Blower with unobstructed air inlets on both sides of the wheel. A specially designed motor, more compact and efficient than anything previously used, is an integral part of the blower wheel center disc (and this blower is physically interchangeable with present direct-drive models).

More efficient absorption of noise and vibration is obtained by use of a stationary shaft; rubber-encased on both ends. And the two rigid tripod mountings give greatest shipping strength, with a minimum interference of air flow.

The LAU ELECTRO-WHEEL Blower, size-for-size, is the most powerful direct-drive unit on the market. It gives air deliveries from 500 to 1500 c.f.m., static pressure from .5" to 1.25" (water gauge), ¼ h.p. motor. Available with or without housing supports which may be mounted in pre-punched holes for any angle of discharge. Five sizes; 9" and 10" wheels. Write for Catalog and specification data.

*TRADE MARK

THE LAU BLOWER COMPANY • DAYTON 7, OHIO

Other Plants: Kitchener, Ont., Canada and Azusa, Calif. ● World's Largest Manufacturers of Air Conditioning Blowers

For more information about products advertised on this page use Information Center, page 54.

Finance Charges--

(Concluded from Page 1, Col. 2)

ing charges coincided with an announcement by the Federal Reserve System that it was again raising its discount rate —the rate at which member banks borrow—this time to 2½%, highest point since the early 30's.

Financial circles say that the following results are likely from the raise in discount rates:

Commercial banks, faced with an increase in costs, will very probably raise their rates on loans to business borrowers.

Consumer credit charges, which have been increased by finance companies and major banks, may go higher still.

Builders, counting on an easing of mortgage money, may be disappointed. (However, see story starting on page 1 on new construction 1956 forecast).

ASHAE Seeks Better Air Cleaning Tests

CLEVELAND—Basic formation to develop better test methods for air cleaning which will reduce dust nuisance in homes, schools, and industry is being sought in an expanded research program now under way by the American Society of Heating and Air Conditioning Engineers.

The sampling, measurement, and behavior of dust particles now under way will be completed this coming year.

Further studies will include methods of dispersing test dust, the preparation of artificial aerosols for filter testing, and methods for sampling dust in a test duct for analysis as to quantity and size distribution. The present methods for rating air cleaners will also be studied.

ARI Exposition--

(Concluded from Page 1, Col. 5)

organization, and George Mills, Show Director.

The Exposition is open to anyone who has an interest in the refrigeration and air conditioning industry, selling, buying, installing, servicing, or designing the industry's products. Registration will be carried out at the door of the Auditorium. There is no admission charge.

A number of manufacturers are using the Exposition as the place at which new lines of products will be introduced. This includes several lines of air conditioners for various types of applications.

Advance information on the exhibits also indicates that there will be more air conditioning, refrigerated fixture, and other "end use" products exhibited at this Show than at previous ones.

Many major industry associations are holding conventions or meetings in Atlantic City during the period of the Show, among them being the Air Conditioning & Refrigeration Wholesalers; American Society of Refrigerating Engineers; National Commercial Refrigerator Sales Association; Refrigeration & Air Conditioning Contractors Association; and Refrigeration Service Engineers Society.

Most of these groups will conclude their meetings by Tuesday, but the ASRE annual convention opens Dec. 1 and runs to Dec. 3.

Built-In Show Cancelled

PHILADELPHIA — Plans to sponsor a built-in appliance show in Chicago early next year have been cancelled by Strauss Spigler Kline Corp. here.

Typhoon Prop-R-Temp Merges with Hupp

TAMPA, Fla. — Merger of Typhoon Prop-R-Temp Corp. of Florida with Hupp Corp. of Detroit is announced by E. L. Garfield, Prop-R-Temp president.

This development follows closely the recent announcement that Typhoon Air Conditioning Co. of Brooklyn and Hupp Corp. are to merge.

The Florida concern, located in Tampa, manufactures heat pumps for commercial and residential heating and air conditioning. Directors of both companies have approved the purchase, according to Garfield.

Under the terms of the agreement, the shareholders of Prop-R-Temp will receive common stock of Hupp (listed on the New York Stock Exchange) in return for their holdings.

Prop-R-Temp's business will be conducted under its present name as a division of Hupp, and the present management of Garfield and James F. Dailey will operate this division, the statement said.

Prop-R-Temp heat pumps, which are based on the utilization of water for the cooling and heating element, are being used extensively in certain southern areas as well as in central and northern regions of the country, it was pointed out.

Building Boom--

(Concluded from Page 1, Col. 3)

ing to a better market for residential air conditioning).

Factory, warehouse, store and other non-residential building is expected to rise 15% from the 1955 level of $8,700,000,000.

Housing and Home Finance Administrator Albert Cole, in a recent statement, said that the Administration will adjust its housing and credit policies to assure the country of approximately 1,250,000 new home starts next year, only slightly less than the 1,300,000 expected total for '55. He said that the Home Loan Bank's recent announcement that it would soon make more funds available for home construction was a part of the Administration's plans for maintaining housing goals.

'Hasko-Struct' Insulation Used for Refrigeration

GRAND RAPIDS, Mich.—A new structure insulation called "Hasko-Struct" is now being used for a variety of applications, according to Haskelite Mfg. Corp. here.

These include the low temperature field, reefer bodies, walk-in coolers, cooler and refrigerator doors, refrigerator bodies, bakery holding units, and insulated partitions. Also, air conditioning ducts, insulated architecture, and unit loading railroad cars.

Hasko-Struct is foam core impregnated fiberglass faces, made in a range of core thicknesses and face thicknesses.

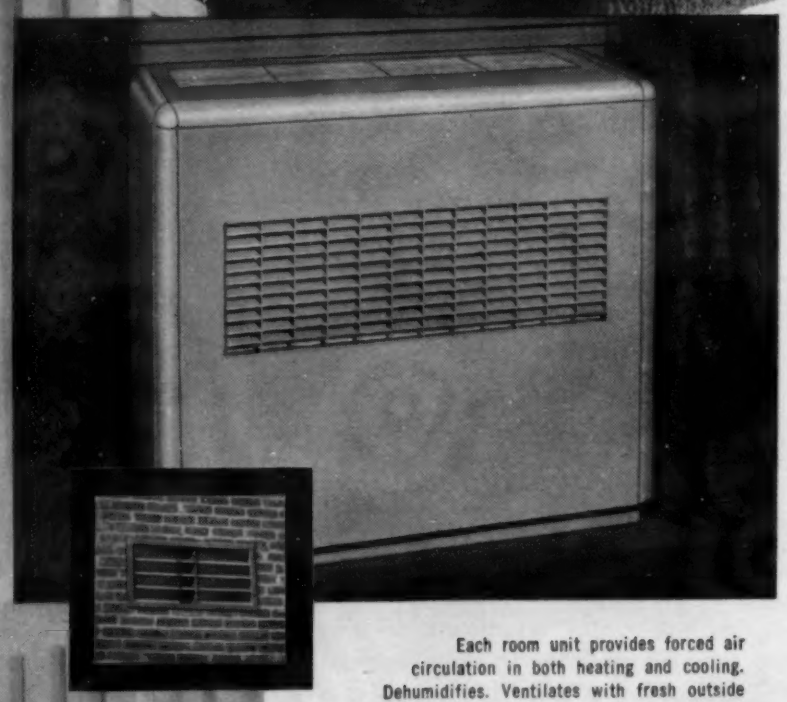
Haskelite Mfg. Will display the insulation at the 9th Exposition of the Air Conditioning and Refrigeration Industry in Atlantic City.

Only the best thing that ever happened

for year-'round room comfort in commercial and institutional buildings

new RECESSED AIR CONDITIONER

BY Mueller Climatrol



Each room unit provides forced air circulation in both heating and cooling. Dehumidifies. Ventilates with fresh outside air, or exhausts stale inside air. Installed on outside walls (most often under windows), the handsome unit extends only 15½ inches into the room. It arrives prime-coated . . . ready for painting to match room decor. Rust-proof and attractive exterior louvre opening (see insert) is flush with the outside of the building.

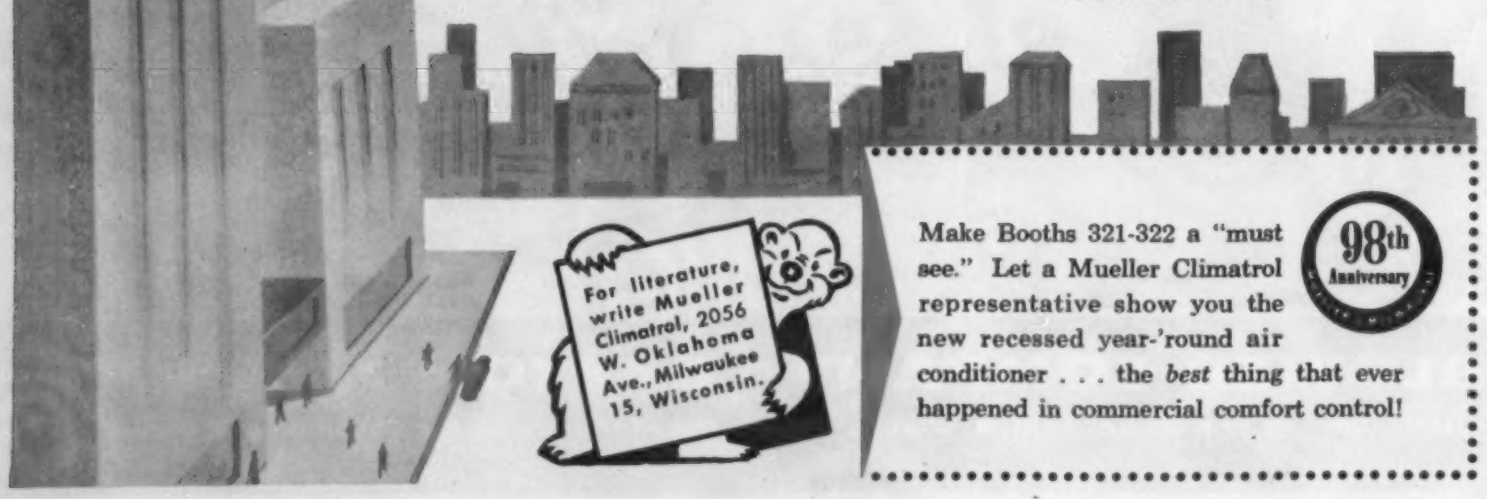
HEATS
with steam or hot water.

COOLS
with its own air-cooled refrigeration cycle.

CONTROLS
heating and cooling in each individual room with built-in thermostats.

COSTS
about half as much installed as a complete central cooling system alone.

IDEAL
for both new and existing buildings, single or multi-story.



Make Booths 321-322 a "must see." Let a Mueller Climatrol representative show you the new recessed year-'round air conditioner . . . the *best* thing that ever happened in commercial comfort control!

98th Anniversary

For more information about products advertised on this page use Information Center, page 54.

VISIT US AT THE CONVENTION—BOOTH 313

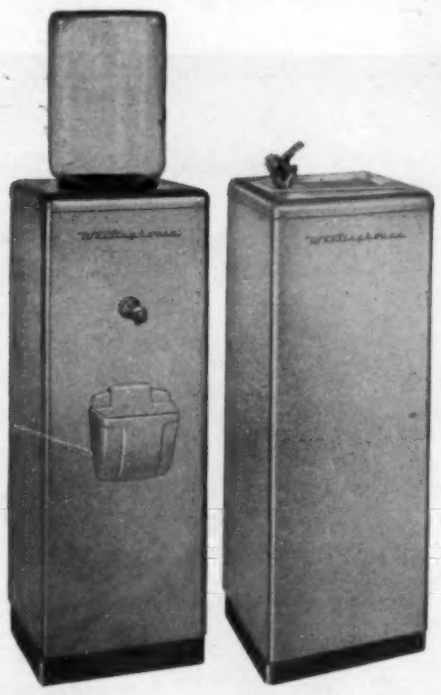
GO PLACES

with all-new, fast-moving, profit-making

Westinghouse Room Air Conditioners

Now! Both Bottle and Pressure Models!

Westinghouse COOLERET



The budget-priced water cooler with king-size profit-making opportunities. A booming money-maker for the ready-made market of small offices, stores, banks, garages and gaining wide acceptance as a household appliance! Backed by a powerful promotion package!

The appliance that's winning more and more acceptance—fast!

Westinghouse ELECTRIC DEHUMIDIFIER

Profit opportunities in this growing market with the finest dehumidifier you can sell—Westinghouse! It's RATED NO. 1! Tests conducted by a nationally known independent testing laboratory prove that Westinghouse Electric Dehumidifiers operate more efficiently—and at less cost—than other makes!

"Custom" Line . . . *for the carriage trade market!*

"Deluxe" Line . . . *for the basic features market!*

"Special" Line . . . *for the price market!*
Plus the finest Casement Window model on the market!

NEW!

"Go Places" Styling! The "new look" in room air conditioners . . . decorator-inspired styling. Sleek, trim appearance that home-makers are looking for!

NEW!

"Go Places" Features! Features that give you a head start in competitive selling . . . Patented Single Dial Control . . . True Flush Mount . . . Illuminated, Concealed Control Panel . . . Full-Width Cooling . . . No-Draft Adjustable Grilles! Feature-planned, line by line, to make selling up easier than ever!

NEW!

"Go Places" Lines! Custom, Deluxe and Special lines! A model for every need . . . for every budget. Designed, engineered and produced by Westinghouse in their new multi-million-dollar plant at Springfield, Massachusetts!

NEW!

"Go Places" Advertising Program! Greatest concentration of in-season advertising in the industry . . . week-after-week TV commercials on Westinghouse Studio One. Big ads in National magazines plus concentrated major market newspaper advertising!

NEW!

"Go Places" Stabilization! A new Westinghouse plan that gives solid protection to dealers against loss by obsolescence!

Take the lead in '56 with Westinghouse Room Air Conditioners . . . the line that's going places, fast!

WESTINGHOUSE ELECTRIC CORPORATION
Electric Appliance Division
Springfield 2, Massachusetts

YOU CAN BE SURE . . . IF IT'S Westinghouse

For more information about products advertised on this page use Information Center, page 54.

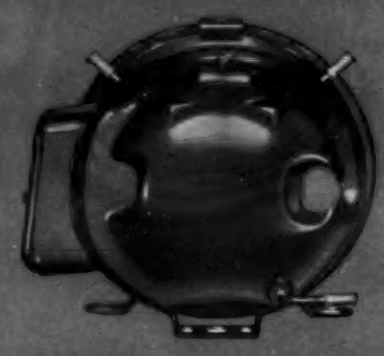
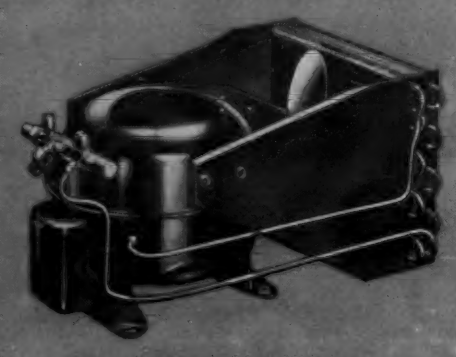
1956 is the year to do

THE BIG LINE . . . OFFERING YOU

Here's the application

Here's the range

Here are typical Tecumseh compressors and condensing units

REFRIGERATORS	FREEZERS
1/12 to 1/5 H. P.	1/8 to 3/4 H. P.
 Models P1218, P91, P6112, P5312 1/12-1/8-1/6-1/5 H.P. Hermetic Compressors	Model S4814 1/4 H.P. Hermetic Compressor
Models S88, S64, S5414, S4414, S4416 1/8-1/6-1/5-1/4 H.P. Hermetic Compressors	 Model S4814LP 1/4 H.P. Baseless Highside

for 1956 Tecumseh offers

MORE QUALITY because as a responsible leader in the refrigeration industry, Tecumseh is constantly improving quality controls to assure more efficient compressor performance. The rigid requirements set by Tecumseh far surpass minimum standards for all phases of compressor manufacturing.

MORE VOLUME because Tecumseh now has three modern, high production manufacturing plants to meet large volume compressor requirements. These plants are strategically located in Tecumseh, Michigan, Marion, Ohio, and Danville, Illinois.

MORE PRICE ECONOMY because of flexible design, tremendous volume and unmatched production methods. Tecumseh is able to make and continually pass along many real savings to our customers.

For more information about products advertised on this page use Information Center, page 54.

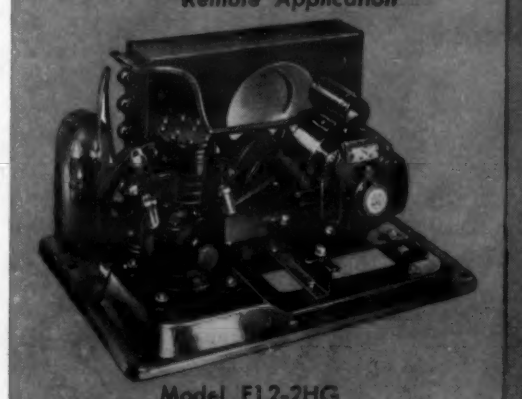
business with Tecumseh

. . . world's largest producer of refrigeration and air conditioning compressors and condensing units

THE WIDEST CHOICE

¼ to 15 H. P.
Conventional
⅛ to 5 H. P.
Hermetic

Model W300L
3 H.P. Water Cooled
Conventional
Condensing Unit
Remote Application



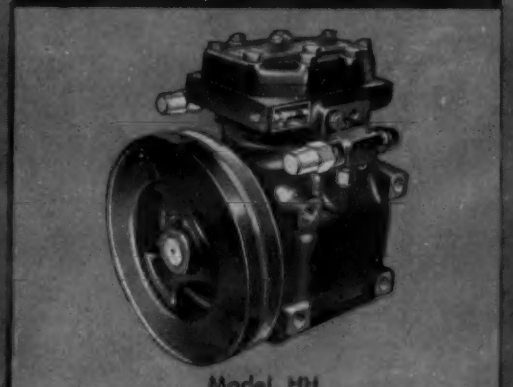
Model F12-2HG
½ H.P. Air Cooled
Conventional Condensing Unit
Self-Contained

⅓ to 2 H. P.

Model S7R16
¾ H.P. Hermetic Compressor

Model B74T16
Economy 2 H.P. Hermetic Compressor

¼ to 15 H. P.
Conventional
⅛ to 5 H. P.
Hermetic



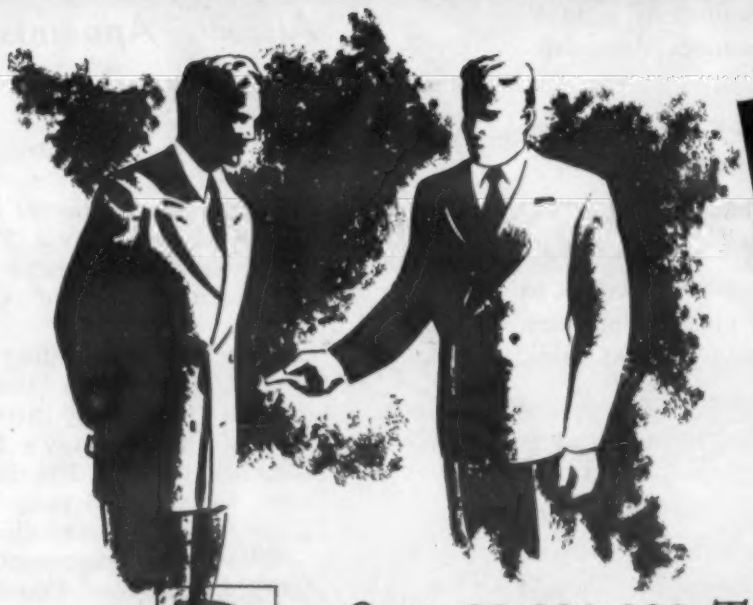
Model HH
Conventional Compressor
Automotive Air Conditioning

Model S68HF
⅛ H.P. Hermetic Condensing Unit

1 to 5 H. P.

Model JE300
3 H.P. Hermetic Compressor
Single Phase

Model FB500
5 H.P. Hermetic Compressor
Single Phase



you'll find **Tecumseh** *at the*
9th AIR-CONDITIONING
and **REFRIGERATION EXPOSITION**
Booths 528-529-530

Tecumseh factory and sales office representatives will be in attendance throughout the entire show. Make it a point to see them and personally receive your copy of the new Tecumseh Manufacturers Hermetic Catalog.
You will be interested in seeing an actual cutaway of Tecumseh's 5 H.P. Hermetic Compressor as well as representative models of the full Tecumseh line of compressors and condensing units, plus other new Tecumseh product developments making their first appearance.

Over 22,000,000 Tecumseh Compressors in Use Today

TECUMSEH PRODUCTS CO.

Tecumseh, Michigan
Marion, Ohio
Danville, Illinois

EXPORT DEPT. - P.O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

For more information about products advertised on this page use Information Center, page 54.

Pennsalt To Have Refrigerant Line Starting Late '56

PHILADELPHIA — Pennsylvania Salt Mfg. Co. has announced plans to enter the refrigerant and aerosol propellant fields late in 1956 with the "Isotron" line—a complete family of chlorofluorohydrocarbons.

"Initial products will include trichloromonofluoromethane, dichlorodifluoromethane, and monochlorodifluoromethane," the company said.

"Early additions to the line will be trichlorofluoroethane and dichlorotetrafluoroethane.

"This expansion is part of Pennsalt's long-range plans for consolidating its established position in the fluorine chemicals industry and to achieve further product diversification."

The new Isotron line will be produced in a multi-million dollar plant already under construction at Calvert City, Ky. There, in close proximity to its extensive fluorspar mines, Pennsalt has several other plants including a hydroguoric acid unit from which this major raw material will be pipelined to the new plant.

"Isotron products will serve two fast-rowing markets—the aerosol container and refrigeration industries," the company stated. "By '56 consumption of the materials is expected to double the amount used in '52.

"Much of the Isotron production also will go to manufacturers of air conditioning and refrigeration equipment who look for accelerated expansion of these markets.

"These new Pennsalt products have been assigned to the Industrial Chemicals Div. and are expected soon to contribute an important part of its total sales."

What's Best Method for Seeing the Show

Pre-Show Itinerary Can Save Valuable Time

"Get as much information as you can about the Show beforehand and then make a list of things to see and do before you register at the entrance to the Exhibit Hall," says a refrigeration supplies wholesaler who has been to most of the Expositions.

"Make a list of the exhibits and the people you want to see —and check them off as you get them done. This can save you a lot of time and effort.

"If you want to talk at some length with any of the individuals manning the booths, try to get that person to set up a special interview for you outside of Show hours, or at some time when the exhibits are open that the traffic will likely be on the light side.

'Start Early, Keep Track Of Daily Stopping Point'

"I would say that the first good rule for seeing the Show the right way is to be sure to get to bed at a reasonably early hour," says a Chicago service contractor.

"In order to cover all of the exhibits you want to see, you've got to get an early start," says this veteran of industry shows. "Furthermore, the booths are likely to be better manned in the early part of the Show hours, and those manning the exhibits will be fresher and more agreeable to answering your questions.

"What we've done at previous Shows is to start down one aisle and work along until the closing hour, or until we're ready to quit. Then we mark on the program or map of the exhibit hall just where we stopped, and pick up there again the next day.

"Make sure you have something in which to put all the literature, specification sheets, souvenir gadgets, and other items you pick up at the booths. Otherwise you'll have to 'unload' your pockets ever so often."

'Three Methods Outlined For Best Coverage'

To utilize his time to the best advantage, the individual who attends the 9th ARI Exposition can make use of one of three different "approaches" in seeing the Show, says one industry veteran who has seen all of the Shows.

Following are the suggestions on the three best methods, from which the individual can make his own choice for the most advantageous tour of the exhibit hall:

(1) When the visitor gets into the Exposition, he makes the "Grand Tour," walking through all of the aisles, and seeing all of the exhibits. On this trip the Show visitor should take notes on the exhibits which he wishes to look over in leisurely fashion. Such notes should be quickly taken, but should provide the kind of information that can be readily checked later.

(2) Second method. From AIR CONDITIONING & REFRIGERATION NEWS (in its issues throughout November prior to the Show), obtain a list of exhibitors, and any information made available on what exhibitor plans to exhibit. List or check on the floor plan the ones in which you're most interested. See those on the list firm. But be sure to allow enough time for an over-all look at the Show.

(3) Third method. Some veteran trade showgoers like to enter the exhibit hall, go right through to the back or one side, and then work back toward the entrance. Psychology of this, apparently is that you'll get a better idea of how your "time" is running on seeing the Show, and avoid missing anything in the far reaches of the exhibit. But it's a rather hit-and-miss method, and the visitor's time could run out on him.

Airtemp Appoints Brosell to Post

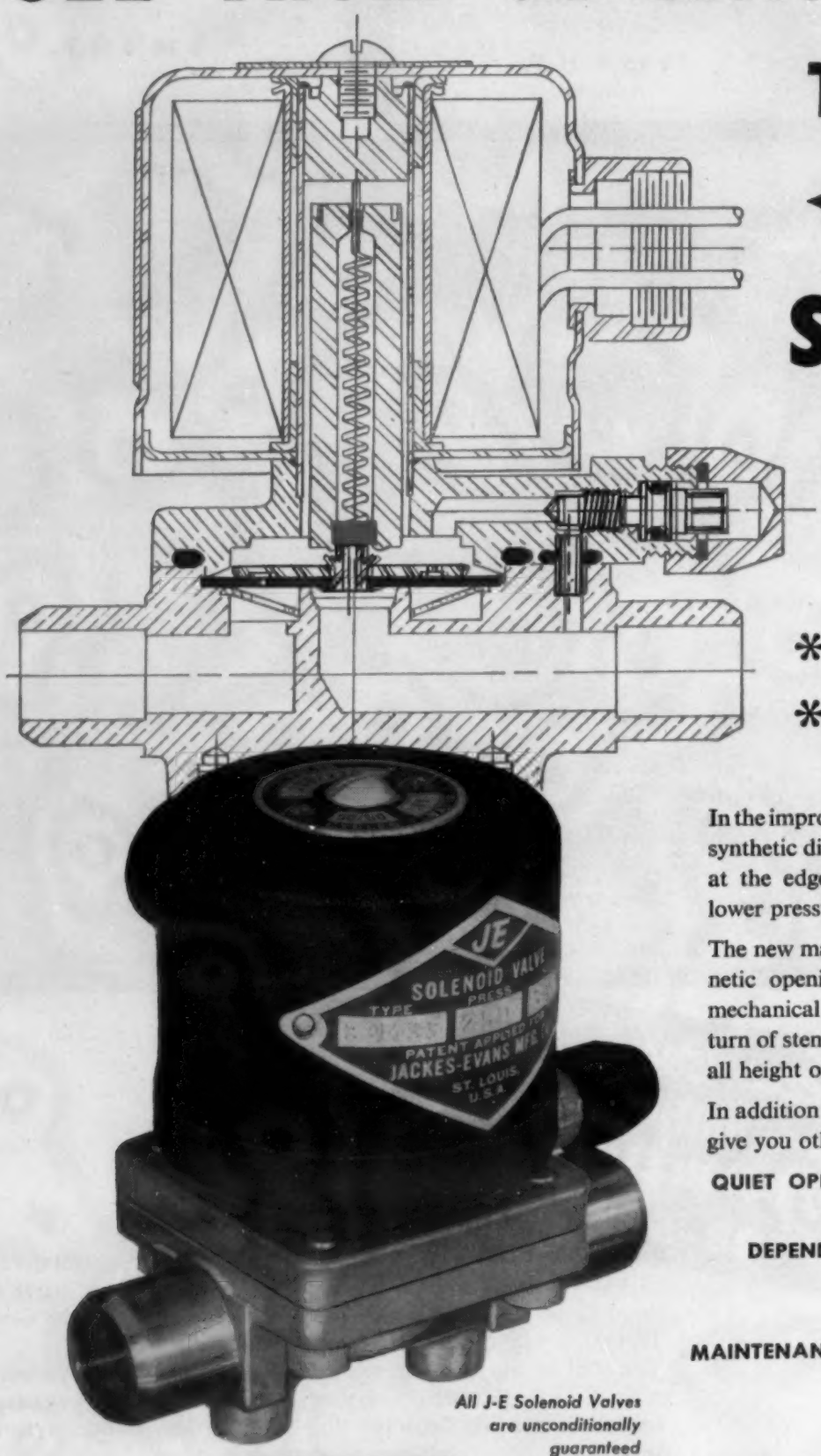
DAYTON—Appointment of L. D. Brosell as West Coast assistant regional manager was announced recently by J. F. Knoff, vice president in charge of sales of Airtemp Div. of Chrysler Corp.

Brosell will be filling one of several new posts that were created recently by Airtemp as part of the company's 1956 expansion program. His headquarters will be the Airtemp Los Angeles regional sales office.

Brosell has represented Airtemp on the West Coast as district representative and, until his new assignment, as district manager since joining the company in 1949.

Prior to his Airtemp affiliation he was for six years merchandising manager for Rudy Furnace Co., Dowagiac, Mich.

SEE Them at Atlantic City



All J-E Solenoid Valves are unconditionally guaranteed for 18 months

The New JE SOLENOID VALVES

* NEW MANUAL STEM
* NEW "FLOATING" DIAPHRAGM *Patent Applied For

In the improved line of J-E Solenoid Valves, the resilient synthetic diaphragm "floats" free . . . it is not clamped at the edges . . . providing greater flow of fluids at lower pressure differentials.

The new manual stem provides action similar to magnetic opening of the pilot port and eliminates all mechanical strain. Opening is obtained by ½ to ¾ turn of stem—no winding. New location reduces overall height of valve.

In addition to these new features, J-E Solenoid Valves give you other time-tested advantages, including:

QUIET OPERATION—no mechanical linkage or impact action.

DEPENDABILITY—No metal-to-metal contact to wear—no close tolerances. Tight closing resilient seats.

MAINTENANCE FREE—only two moving parts—flexible diaphragm eliminates clogging—minimum temperature rise assures cool coils, long life.

For complete information on the wide range of sizes available in the newly improved line of J-E Solenoid Valves, call your wholesaler or write direct today.

Get Your Copy of the New J-E Catalog at Booth 109 All Industry Show Nov. 28 - Dec. 1

—for lasting customer satisfaction

JACKES-EVANS MANUFACTURING COMPANY

Controls Division: 4427 Geraldine Avenue, Saint Louis 15, Mo.

For more information about products advertised on this page use Information Center, page 54.

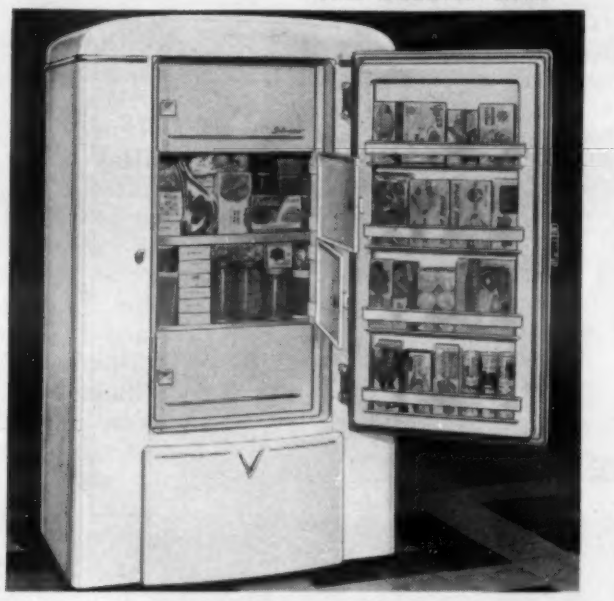
SUB-ZERO

THE *Complete* LINE GIVES YOU

MORE TO SELL!

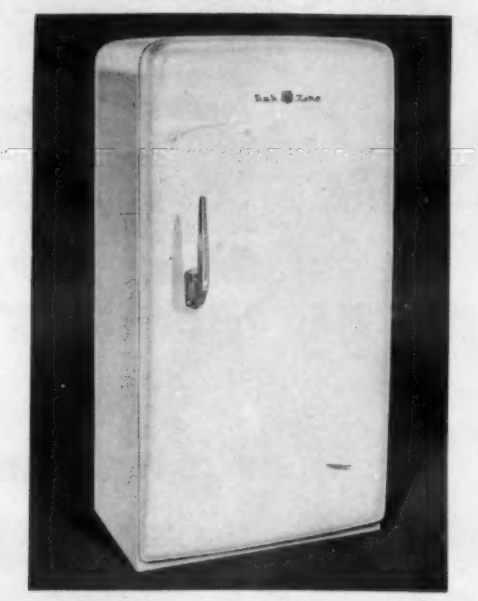
upright freezers

THE DELUXE LINE



SIX MODELS, from 12 to 35 cu. ft. capacity (Model 22D illustrated). All-Aluminum construction, storage shelf door, sparkling white interior.

THE STANDARD LINE



A NEW LINE with steel exterior and aluminum interior. In 14 and 18 cu. ft. sizes (Model 14S illustrated).

TU-TEMP

MODEL 99 — Beautifully designed, new two-temperature upright with 9 cu. ft. refrigerator above and 9 cu. ft. freezer below. Separate condensing units for each section.

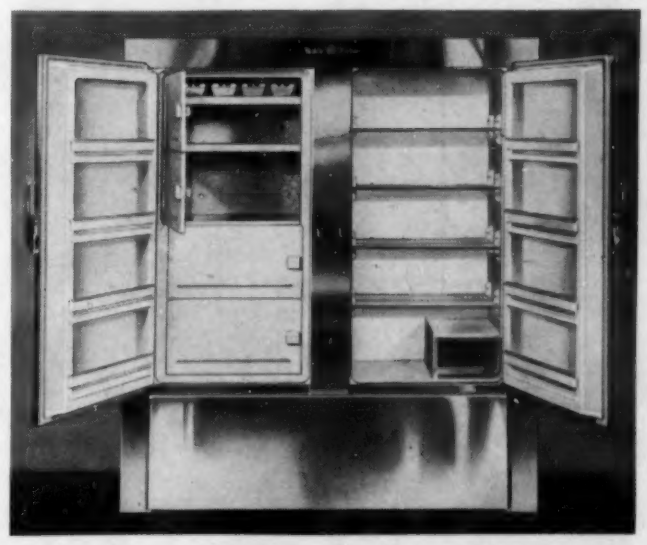
new built-ins

OVER-UNDER COMBINATION

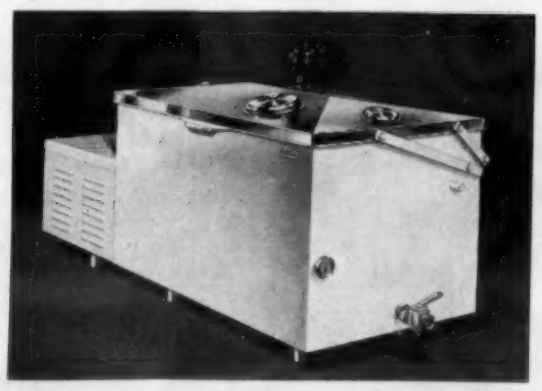
MODERN, ATTRACTIVE freezer-refrigerator built-in combination with 8 cu. ft. refrigerator on top and 7.25 cu. ft. freezer below. Separate condensing units behind convenient "pull-off" grille. This "packaged unit" is especially easy to install . . . also available as a remote installation . . . choice of several colors plus Coppertone and Stainless Steel.

LARGE CAPACITY UPRIGHT COMBINATION

THIS LARGE CAPACITY built-in combination has 12.1 cu. ft. of freezer space and 12.1 cu. ft. of refrigerator space. Available in double unit as illustrated—or either section can be purchased separately. Freezer has beautiful stucco embossed aluminum interior — refrigerator interior finished in gleaming white. Also available in several decorator's colors and in Coppertone and Stainless Steel.



milk coolers

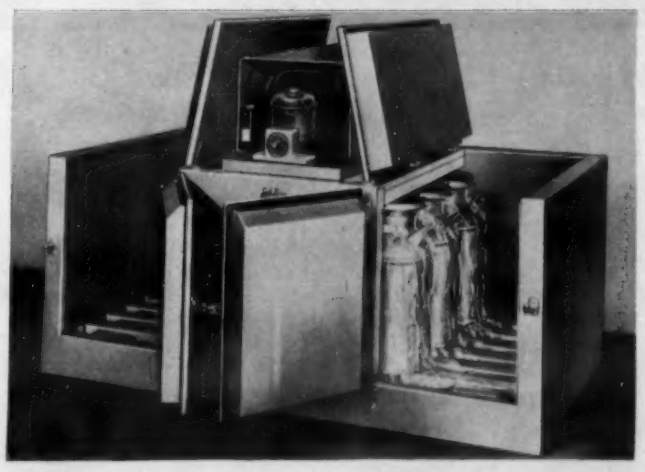


BULK MILK COOLERS

HEAVY DUTY stainless steel tanks . . . in 150, 200, 250 or 300 gallon sizes. Direct expansion. Available remote or self-contained . . . and in color or stainless steel finish.

CAN MILK COOLERS

Easy, front loading in both Spray and Cascade Models. Both lines in 4, 6, 8 and 12 can capacity coolers.



See this Complete Line at
9th EXPOSITION
AIR CONDITIONING and REFRIGERATION INDUSTRY
Atlantic City — November 28 - December 1
BOOTH NO. 647

SUB-ZERO FREEZER CO., INC.
MADISON, WISCONSIN

Sub-Zero Freezer Co., Inc.
Dept. AN 11
Madison, Wis.

We're interested in more information on:

☐ Upright Freezers ☐ Tu-Temp ☐ Built-Ins
☐ Milk Coolers ☐ Complete Line
Send Your ☐ Dealer ☐ Distributor Plan

NAME _____
FIRM _____
ADDRESS _____
CITY & STATE _____

For more information about products advertised on this page use Information Center, page 54.

Table 1

Projected Sales Refrigerated Room Air Conditioning Units 1953 Through 1960 and Actual by Years Through October, 1955

	1952	1953	1954	1955	1956	1957	1958	1959	1960
U. S. Total	407,112	700,000	1,000,000	1,250,000	1,500,000	1,700,000	1,875,000	2,050,000	2,250,000
Actual Sales*	..	754,000	1,000,000	1,259,000	..	..	..	..	..
"Texas Bright Spot" Trade Territory*	179,714	308,000	440,000	562,500	675,000	765,000	825,000	881,500	900,000

*As calculated by Texas Power & Light Co.

Table 2

Projected Sales of Central and Packaged Unit Air Conditioners (Less Than 10 Tons Capacity) 1955 Through 1960

	1955	1956	1957	1958	1959	1960
U. S. Total	74,500	125,000	170,000	225,000	255,000	280,000
"Texas Bright Spot" Trade Territory	33,798	56,250	76,500	103,500	117,300	128,800

Texas Utility's Forecaster, With High Score on Conditioners, Projects to '60

"AMBASSADOR TO the Industry from Texas" might well be title of J. Cal Courtney, Industrial Consultant for Texas Power & Light Co. In his drive to get some of the industry's producers to move to the area served by the utility, he has made some intensive studies of the market, which are presented in the tabulations published on this page.

DALLAS — While individuals in many types of endeavor have taken a swing at predicting the growth of the air conditioning industry in terms of actual unit sales, few can boast the accuracy attained by J. Cal Courtney, Industrial Consultant for Texas Power and Light Co.

In 1952 The Texas Power and Light Co. published a report of a survey made by Courtney on sales and distribution of room air conditioners. The object was to show the advantage of locating the manufacturing plants in the closest proximity to the markets.

How close Courtney came to hitting the mark is demonstrated in Table 1, which shows the estimates he made in 1952, and the subsequent actual figures achieved through 1955. Thus his projections for the years through 1960 should be of interest to the industry.

"Some manufacturers have taken advantage of the facts disclosed in the study," Courtney says. General Electric has located its main plant for production of residential air conditioners at Tyler, Texas. Carrier took over Affiliated Gas in a merger and is enlarging the Tyler plant. O. A. Sutton in the fringe of the Southwest market has undertaken a big expansion program. The Alden Co. took a good look and bought the fast-growing Mathes Co. at Ft. Worth. Friedrich of San Antonio is expanding its facilities for production of room units. Other companies are taking a look at the 'Texas Bright Spot.'"

Courtney believes that retail sales are the only basis upon which distribution can be justly determined. Among the many things he did to assure the accuracy of his predictions was to trace transshipments across the country to substantiate reported sales on the local level.

The untility Industrial Consultant has revised his study and has it with him at the 9th ARI Exposition. He is making his headquarters at the Chalfonte-Haddon Hall hotel.

Some of Courtney's other predictions on the course of sales in the air conditioning industry are shown in Table 2 (projected sales of central and packaged unit air conditioners *(of less than 10 tons capacity)* from 1955 through 1960); and Table 3, his estimate of 1955 sales of packaged unit air conditioners in the "Texas Bright Spot" trade territory.

* * *

Table 3

Sales of Packaged Unit Air Conditioners In 'Texas Bright Spot' Trade Territory

Texas	13,239
Oklahoma	2,708
Kansas	3,100
Louisiana	2,262
Arkansas	1,491
Mississippi	1,320
Missouri	5,595
Parts of Other States	4,083
	33,798
	or
	45.4% of U. S. Total

Remember your winning numbers AT ATLANTIC CITY*

421 AND **314** ARE THE BOOTHS WHERE YOU'LL SEE

Curtis AIR CONDITIONING EQUIPMENT

NEW

PACKAGED AIR CONDITIONERS

. . . 2, 3, 5, 7½, 10, 15 and 20 ton sizes . . . handsome, new design . . . flexible and versatile.

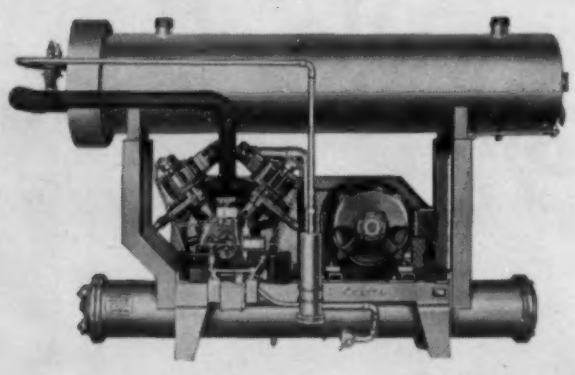
New models to be shown for the First time at the ARI Show

New unit to be shown for the First time at the ARI Show

NEW

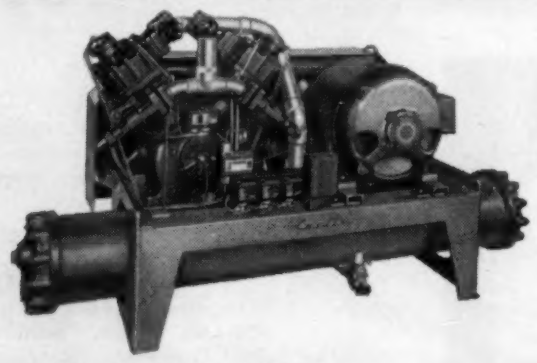
AIR-COOLED HOME AIR CONDITIONERS

. . . 2, 3 and 5 tons . . . easy to install . . . eliminate water problem. Condensing unit installed outdoors. No bulky equipment in basement.



WATER CHILLERS

. . . 7½ to 100 tons . . . with *Console Units* to provide room-controlled cooling without ductwork.



CONDENSING UNITS

. . . air-cooled from ¼ to 3 tons . . . shell-and-tube from 7½ to 100 tons . . . combination air and water-cooled from ½ to 3 tons.

CAN'T COME . . . ? If you're unable to see us at Atlantic City, we'll be glad to rush you full information on any of these products. Write us!

*at the ARI Show, Nov. 28 — Dec. 1 . . .

Be sure to see us!

Curtis

958

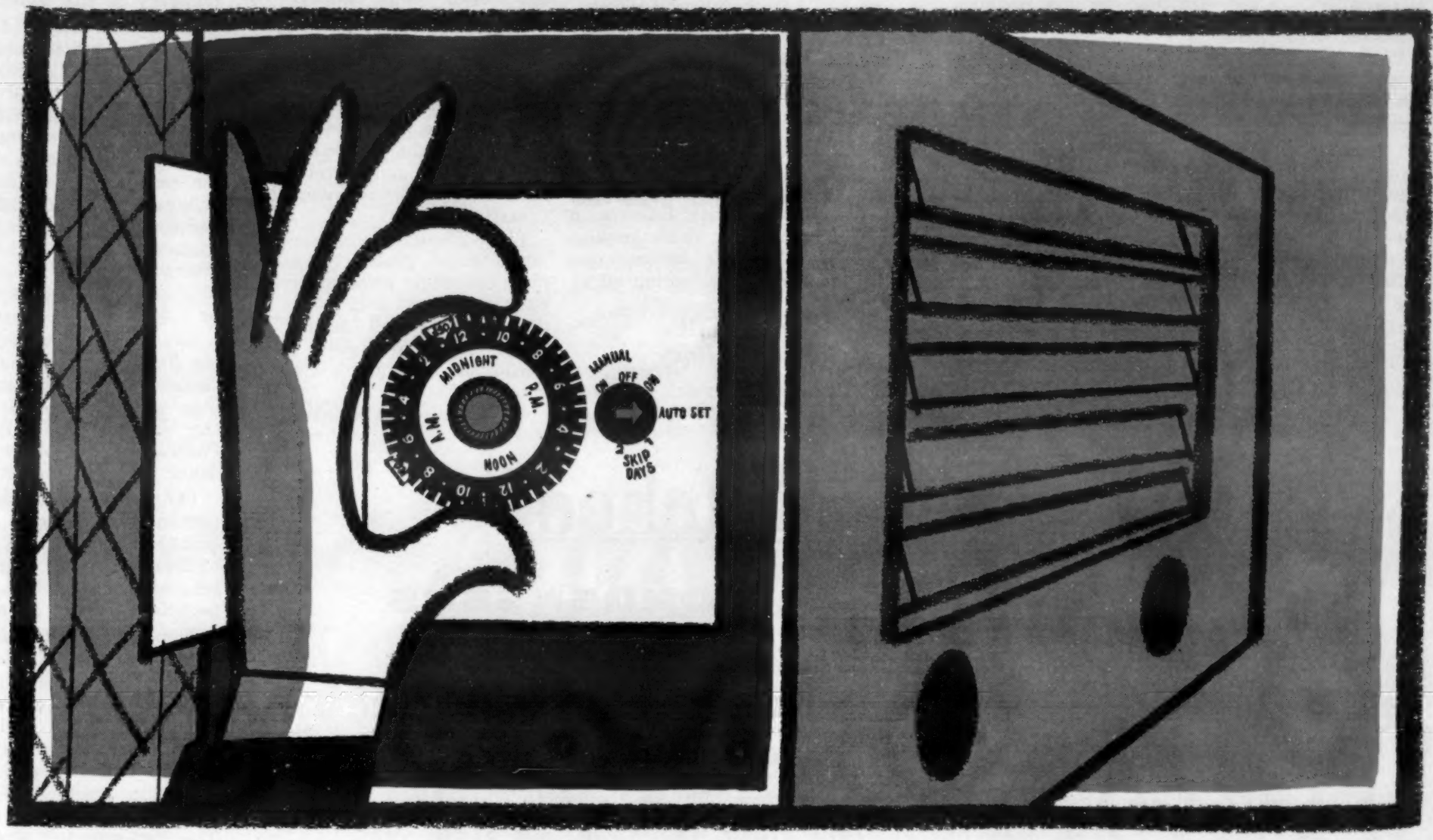
MANUFACTURING COMPANY

Refrigeration Division

1912 Kienlen Avenue, St. Louis 20, Missouri

For more information about products advertised on this page use Information Center, page 54.

Biggest News in Air Conditioner Sales

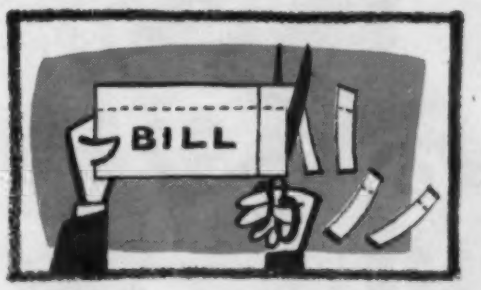


Built-in Telechron Electric Memory timer automatically turns air conditioner on and off as you come and go! *Easy to demonstrate... easy to use... exclusive sales-closing features!*

AUTOMATICALLY turns on air conditioner before you arrive at your office. Skips week ends.

AUTOMATICALLY turns off your home air conditioner after you go to sleep... just set it and forget it!

AUTOMATICALLY turns on home air conditioner before you return from work or play!



AUTOMATICALLY saves electricity ... cuts operating costs... ends over-air-conditioning rooms!

EQUIPPED WITH Telechron TIMER

TELECHRON *timers make sales easy . . . automatically*

Telechron Timers, Clock and Timer Dept., General Electric Company, 1612 Homer Ave., Ashland, Massachusetts

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

air conditioning items for 1956 can be divulged:

Room (window-type) air conditioners	1,900,000
Commercial (Package-type) air conditioners	211,000
Automobile air conditioners	461,000

Please appreciate that all these predictions are based on confidential information supplied to "Inside Dope," and that none of these estimates can be deemed infallible.

In planning ahead, you are advised to "travel at your own risk" (as the highway detour signs warn) because many things can go astray with forecasts.

What's the 10-Year Future for Home Air Conditioning?

For truly big corporations, economic forecasting is a necessity. And so they hire expensive staffs of competent market analysts to predict the future for the various products they make and sell.

Recently it has been "Dope's" good fortune to enjoy the privilege of seeing three such studies on a subject which fascinates most of us:

The future market for central-system home air conditioning installations (including add-ons and heat pumps).

Naturally, in anything so hazardous as economic forecasting, these three studies do not coincide—although marks of similarity were astounding.

And the following predictions are not identical with any of the three. Let's just say that they are a reasonable composite.

So, for what they be worth to you, here is a forecast to mull over:

Residential Air Conditioning Installations

1956	170,000
1957	220,000
1958	350,000
1959	510,000
1960	830,000
1961	980,000
1962	1,200,000
1963	1,350,000
1964	1,500,000
1965	1,800,000

Do those figures take your breath away? They did ours. A word of caution: these tremendous goals can't be achieved without enormous selling effort.

Here's a Man We All Could Envy

Thanks to mutual acquaintanceships it was "Dope's" pleasure to entertain a remarkable young Englishman, Tom Stobart. He's the intrepid lad who officially photographed the successful assault of Mt. Everest.

Moreover, he has cinematographed an Antarctic expedition, plus wild game African sequences for many a Hollywood and London movie, among other adventures.

One could do a book about this six-foot-four Englishman who gave up a *secure* career as a movie director to bet his life against The Unknown. And perhaps we shall some day. In the meantime, a few quick random excerpts from several conversations:

(1) Although the conquest of Mt. Everest probably was the most excitingly awesome experience of the last decade—to fireside followers all around the world—for Tom Stobart it was a colossal bore and a tiresome chore.

Days and weeks he spent with bickering, dull personnel—under less than ideally comfortable conditions—to shoot a few moments of film. True, his photography was magnificent, and acclaimed 'round the world.

"But," he adds, "the pictures were *there.* No creative challenge to compensate for the drudgery or the waiting."

(2) Which story of the Mt. Everest ascent is most nearly correct—Tenzing Norkay's, or that of Sir Edmund Hillary? Neither. The REAL Story hasn't been told. One reason: Communists in India fouled up the records and distorted communications. And Hillary and Tenzing were so numbed when they came down (and for weeks afterward) that occasionally they fell prey to exploiters and to a few induced fantasies.

(3) What about the *Abominable Snowman*—a semi-mythical "missing link" between ape and man which supposedly inhabits the cruelly cold Himalayas? Photographer Stobart has evidence to prove that it exists.

(4) From his deathly exposure to African lions, panthers, bull elephants, murderous water buffalo, crocodiles, hippopatami, serpents, and gorillas, what experience sticks in his mind?

Tom is crestfallen. Why? Because he couldn't commercialize cheetahs. The latter run faster than any animal in the world.

With help from natives, Tom trained three cheetahs to run around a track. These he entered in Near East dog races. The dogs were left so far behind that cheetahs were ruled out henceforth.

Next, he tried to promote races between cheetahs. Again, no contest. Whenever one cheetah gets ahead, others quit running against their cousins.

Some day Tom Stobart may parlay his continuing adventures into a lecturing fortune. Thus far, though, he doesn't care. He's still eager to see, to learn, and to risk. It's adventure he wants.

And we'll bet there isn't a male reader of this column who doesn't wish he had or could have the chance to be another Tom Stobart.

How to Hear Football

To recent bewildered TV and radio home attendants of football games, herewith are a few definitions of technical terms bandied around willy-nilly by broadcasters:

T FORMATION: Quarterback hugs his center; other backs are three or four yards back, forming a loose T. Quarterback takes ball from center, usually fakes, and hands it to an unexpected back or throws a pass.

SPLIT T: Linemen are spread at least a yard apart. Behind them quarterback "slides" left or right, and runs or passes as he sees fit. This is a rough deal for defensive tackles and ends. Whomever they glom probably is the wrong man.

SINGLE WING: All the backs and linemen block for the runner, and most of them are lined up in front of him, in the direction he is going. Scant deception, but the blocking can be devastating. Some tricks (like a reverse going the other way or a quick

(Concluded on next page)

HM THE ONLY Matched

COOLING TOWERS and CONDENSERS

The Halstead & Mitchell Cooling Towers you select are *matched* by design to work with the famous Halstead & Mitchell water-cooled Condensers. You need no longer buy a high-efficiency cooling tower to work with a low-efficiency condenser (or *vice-versa)* . . . a long-life cooling tower to work with a short-life condenser (or *vice-versa).*

Remember that every cooling tower you sell is planned to work with a water-cooled condenser—then you'll see why America's leading manufacturers of air-conditioning and refrigeration equipment have swung to Halstead & Mitchell for their original equipment needs in both these components.

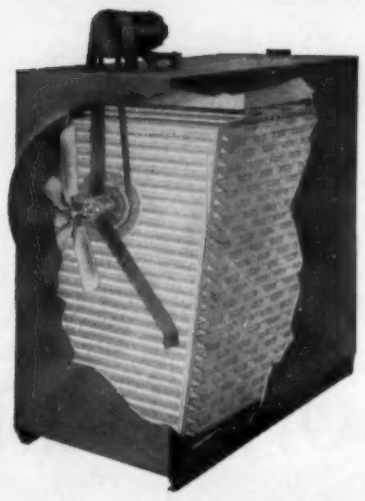
With cleanability you'll sell more. Why sell less?

20-Year Guarantee!

on the wetted deck surface against rotting or fungus attack

Only Halstead & Mitchell pressure-creosoting can provide a *guarantee* against immediate attack by fungus and marine parasites . . . or chemical deterioration from acids in water.

Added to this H&M exclusive are other major advantages. There's ultra-high efficiency in the gravity-type water distributing pan which eliminates extra pumping head required on spray type towers . . . and cuts down on water losses due to "atomizing" of water. And there's extra-long life in stainless steel fans . . . and sheet steel cabinets hydraulically painted with vinsynite, vinyl zinc and chlorinated rubber.



2 thru 120 TONS

1/3 thru 25 TONS

Lifetime Cleanability

The *mechanical* cleaning of H&M double-tube, counter-flow condensers means the simplest, least dangerous method of restoring new unit efficiency. Whether removing a heavy coating of sludge and scale, or a thin insulating film on the inner walls of the copper tubing, the mechanical cleaning tool restores heat transfer efficiency in a matter of minutes. The result is lowered discharge pressures . . . more heat carried off by cooling water . . . lower bills. *Only* the impurities are removed . . . the thickness of the copper wall remains intact, and the condenser gives extra years of peak service.

At Leading Heating and Refrigeration Wholesalers EVERYWHERE

Write for Detailed Specifications

HM Halstead & Mitchell

BESSEMER BUILDING • PITTSBURGH 22, PA.

For more information about products advertised on this page use Information Center, page 54.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from preceding page)

punt) can be foolers. But usually it's sheer weight and muscle.

FLANKER: Oftimes a "flanker" is a back who takes position behind and beyond an end, and doopers out to catch a pass.

RED-DOGGING: Line backer on defense rushes prior to snap of ball to draw off-side penalty on part of attackers.

FLOATING END: Waits for play to develop before committing himself; used frequently against split T.

LOOPER: Lineman who slips around offensive blockers, instead of charging into them.

SLANTER: Lineman who bulls ahead between blockers—thus becoming vulnerable to a "trap" play.

NAKED REVERSE: Play apparently headed to the right; but ball carrier goes opposite way all by himself minus blockers.

BOOTLEG: Like "naked reverse," except that "bootleg" is run exclusively by a "T" quarterback. He fakes handoff going one way, hides ball on hip, and runs around end who is chasing a faker in another direction.

MOUSETRAP: Defensive lineman is allowed to charge; after which he is blocked sidewise.

DRAW: Similar to "mousetrap." Play starts like pass pattern. Offensive linemen rise up, shield backs, and shoulder block to clear path for delayed ball carrier.

HITCH: Fake downfield by back or end who whirls and retraces his steps to receive a pass at position just vacated by defense.

BANANA: Receiver runs a path similar to shape of a "banana"; in and out, out and in, until defense is confused.

SPOT: Quick pass to man running wide toward sideline. Short-gainer; almost impossible to intercept.

SCREEN: Short pass to rambunctious runner protected by all available blockers. As a surprise, well-executed, it can become an explosive touchdown.

PITCHOUT: Underhand lateral pass to man in motion, usually far outside defending end. Favorite play of "split T" quarterbacks.

SAFETY VALVE: Blocker who stays close to passer. His primary job is to catch a short pass or pitchout if downfield men are covered and passer is about to be smeared.

Any questions?

Postscript

All seats for the 1955 Bears-Rams game in Chicago were gone, a disconsolate ticket seeker was informed.

"We can sell you standing room," offered the windowman.

"Well, OK, if I can get two together."

Height of Frustration

Retail salesmen for Cadillacs in New York City went out on strike this year. Pickets, placards, the works.

Their average income, admitted their Teamster's Union spokesman, was $17,000; and some made as much as $40,000 a year.

"But all these men have," complained their Union agent, "is the opportunity to make money."

Philosophy for Everyone

Friendship is immeasurable; we can't keep books on it. Friendship thrives simply because only in generosity of mind and spirit can we sense how the other person feels.—EDGAR DALE.

We talk of life in the machine age, the medieval age, the stone age, but I think today's living could be classified as life in the aspirin age.—*Christian Advocate.*

Much depends on what you say, but more on how you say it.

Those who forgive most, shall be most forgiven.—BAILEY.

Last Laughs

One kind of trouble is enough. Some folks take on three kinds at once—all they have now, all they have had, and all they ever expect to have.

Personality is that vague something which enables a man to appear in a dress suit without everybody wondering in what restaurant or orchestra he works.

NOW LENNOX® has the easy answer

to both commercial and home air conditioning

- Save up to $75 on every installation you make
- 2½ to 7½ ton capacity—air or water cooled
- An efficient system for every need

There's no one-sided market for Lennox dealers! Lennox gives you more to sell . . . more features to talk about—and a compact, attractive, quiet and affordable system for every home and commercial prospect from Main Street to Shady Lane. Full hermetic circuits, simplified wiring, revolutionary new ideas for easy installation are just a few of the reasons why dealers—right now—are making more money with Lennox. So if *you* like the music of money in the till . . . get the full Lennox story!

WRITE TODAY FOR INTERESTING FACTS...

LENNOX® . . . a complete line that's profitable to sell

THE LENNOX FURNACE COMPANY

Marshalltown, Iowa • Columbus, Ohio • Syracuse, N. Y.
Fort Worth, Texas • Salt Lake City, Utah
Los Angeles, Calif. • Decatur, Ga. • Des Moines, Iowa
In Canada: Toronto and Calgary

Worthington Kit Shows Home Air Conditioning Unit Adaptability

HARRISON, N. J. — A "unique" residential air conditioning sales kit, known as the "Climate Kit," has been introduced by Worthington Corp. to over 700 air conditioning dealer personnel in meetings throughout the country.

The Climate Kit will be a major center of Worthington's advertising and sales promotion program for 1956. Dealer salesmen, known as "Your Worthington Climate Man," will carry the brief-case-size kit to prospects' homes to demonstrate home air conditioning may be adapted to any type home.

LIGHT SHOWS THROUGH

"A light box beneath a diffused plastic surface, with a series of transparencies showing typical home diagrams, will enable the 'Climate Man' to show the homeowner how various air conditioning installations can fit his particular home," it was pointed out.

"Should he run across an unusual home layout not included in the kit, he will use a transparent acetate sheet to sketch the special home.

"The drawings relate the air conditioning installation to each given condition as to furnace location, space available, existing warm-air system with ductwork, complete year-round conditioning including heating, or the cooling system as a separate unit, installed in limited space such as crawl space, attic, closet, or garage.

KIT INCLUDES KEY PARTS

"The kit also contains transparencies showing how Worthington's new 'Flexi-Cool' air conditioners will fit in any type of commercial establishment.

The kit will include key parts, such as filters, insulation, sealed bearings, and thermostats to demonstrate the sales features of all Worthington equipment. Literature showing the various parts of the system such as compressor, condenser, fan and blower system, a description of how air conditioning works, will also be included in special pockets.

2 Complete Air Conditioning Systems To Be Installed In Propulsion Center

LOS ANGELES—Paul Hardeman, Inc., southern California air conditioning contractor, reported that one of its most extensive installations jobs in several years is now being set at the new Propulsion Center facility at Canoga Park, Calif., for North American Aviation, Inc.

AIR CONDITIONING HAS UNUSUAL ASPECTS

The air conditioning phase of the project has several unusual aspects, it was indicated.

The $3 million project, containing approximately 300,000 sq. ft. of floor space, will serve as North American's headquarters for research, engineering, development, and manufacture of rocket engines for the U. S. Armed Forces.

Core of heating and cooling is Drayer-Hanson air handling equipment: HHV air conditioning units, HH-type ceiling-suspended equipment; "Flexazone" central-plant zoned air conditioners, and "Perma-Fan" evaporative condensers.

Two complete systems of air conditioning are being installed at the new facility.

ONE SYSTEM SUSPENDED

One type, using air conditioning equipment ceiling suspended in various spots throughout the building, will, for cooling, utilize chilled water from a 100-ton Trane chiller-compressor unit located on mezzanine service area.

The other system—mezzanine floor-mounted air conditioning equipment, located midway between administrative offices and factory area—will use DX refrigerant for the cooling cycle. Both systems will utilize steam piped direct from boiler plant for heating. Supporting air conditioning equipment on mezzanine are three 130-ton compressors.

Certain areas of the new plant, including computer section, will be supplied with humidity control, as well as temperature control facilities.

61 PIECES OF EQUIPMENT

In all, some 61 pieces of large D-H air handling equipment are moving into the job; also, four evaporative condensers. In the saw-tooth area overhead in the main factory section, 25 D-H fan sections containing their own heating coils, and 13 roof-mounted HH type units will be placed. Latter will supply ventilation to the crane bay area, equipped to handle both high and low-type cranes.

It was stated that unique feature of the Drayer-Hanson HHV floor-mounted units on the mezzanine are 24-in. raised legs which allows for running a natural gravity condensate drain from each unit.

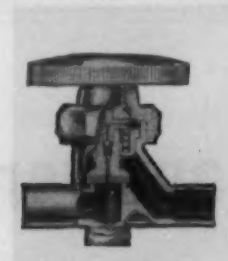
The elaborate new plant is scheduled for complete occupancy by late December.

Representing Drayer-Hanson in the transaction was its local factory representative, Air Conditioning Supply Co., Los Angeles.

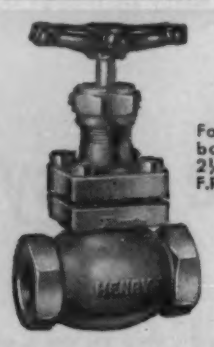
Brawner Appointed To New Gibson Post

GREENVILLE, Mich. — Gibson Refrigerator Co. has appointed William E. Brawner to the newly-created post of New York regional sales manager for its recently enlarged central air conditioning and heating division, it was announced by Earl Palmer, manager of the division.

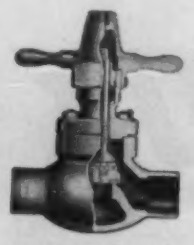
Brawner was formerly with the appliance division of the General Electric Co. He will make his headquaters in New York City and will be responsible for the sale of Gibson central air conditioning equipment for commercial and residential use in New York and the New England states, as well as in eastern Pennsylvania, including Philadelphia.



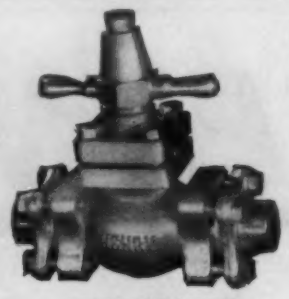
PACKLESS VALVE
With balanced-action. Sizes ¼" through ⅜" Fl., ¼" through 1⅝" O.D.S.



AMMONIA VALVE
Forged steel or semi-steel bodies. Sizes ¼" through 2½" F.P.T., 1¼" through 6" F.P.T. slip-on welding or welding neck flanges.



WING CAP VALVE
Non-ferrous. Sizes ⅞" through 4⅛" O.D.S.



WING CAP VALVE
Semi-steel screwed or flanged types. Sizes 1¼" through 6".

HENRY VALVE CO. CONTROLLING FLOW SINCE 1914

you pay — no premium for.. the extra advantages found in Henry products or for the extra satisfaction that follows their use

STRAINER
Angle type with patented distortion-type flange. Sizes ⅜" through 4⅛" O.D.S., 2½" through 4" butt weld.

Y-STRAINER
Brass plated. Welded steel construction. Forged brass connections. Sizes ⅜" through 4⅛" O.D.S., 2½" through 4" butt weld.

BALANCED-ACTION PACKLESS LIQUID LEVEL GAUGES
Valves are backseating—diaphragms may be inspected or replaced without loss of liquid. Conforms with all safety code requirements. Also packed types, capped or with hand wheels.

CHECK VALVE
Piston Type For Freon. Sizes ⅞" through 4⅛" O.D.S.

DRIER
Cartridge type 12 to 500 cu. in. capacity. Sizes ⅜" to 2⅛" O.D.S

DRIER
Large diameter and capacity. All brass construction. Minimum pressure drop.

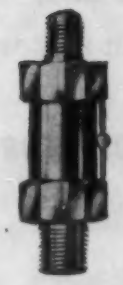
... Write for these catalogs

No. 101 Packless and packed valves, strainers, driers, check valves, relief valves, three-way valves, liquid gauge sets, flange unions and accessories for air conditioning, refrigeration and industrial uses.

No. 201 Ammonia valves and accessories.

No. 71 Drop forged and cold rolled steel fittings.

DIAPHRAGM RELIEF VALVE
Operates independently of outlet pressure permitting use of rupture disc assembly on outlet side without increasing initial leak pressure. Forged brass bodies. Sizes, ⅜" & ½" I.P.S., ½" & ⅞" O.D.S.



UV NB

STRAIGHT-THROUGH RELIEF VALVE
Large capacity—All brass construction. Sizes ½" through 1" P.T. Meet A.S.M.E. standards, National Board Certified. Other sizes and types available.

See Our Booth 608-609
9th Exposition Air Conditioning & Refrigeration Industry
Atlantic City, N. J.
Nov. 28 - Dec. 1

Stocked and Sold by Leading Jobbers

VALVES • DRIERS • STRAINERS • CONTROL DEVICES and ACCESSORIES FOR REFRIGERATION and AIR CONDITIONING and INDUSTRIAL APPLICATIONS

HENRY VALVE COMPANY

MELROSE PARK, ILLINOIS Chicago Suburb • Cable HEVALCO MELROSE PARK, ILLINOIS

For more information about products advertised on this page use Information Center, page 54.

HELP!

Business at Airtemp is increasing faster than our employee training program can prepare the men to handle it. So, we must look outside our organization for . . .

HELP NEEDED AT HOME OFFICE IN DAYTON

APPLICATION ENGINEERING

Preparation and development of application data for residential cooling and heating. Knowledge of products and their application necessary.

Preparation and development of application data for central station equipment. Must have knowledge of all sizes of equipment methods of installing. Ability to train field personnel necessary.

PRODUCT ENGINEERING AND LABORATORY TESTING

Product Engineering—Heating

Development, improvement, cost reduction and production follow-up on gas and oil-fired heating equipment.

Product Engineering—Room Air Conditioners

Development and expansion of line of room air conditioners. Cost reduction and production follow up essential.

Laboratory Testing

Develop material and process standards, as well as testing procedures. All products—cooling and heating.

Technician

Laboratory testing of residential and commercial cooling and components for efficiency, serviceability, cost of operation, etc.

HELP NEEDED IN FIELD ORGANIZATION

Builder Specialists

Experience in contacting and selling builders essential. Residential cooling and heating product knowledge desirable.

Headquarters Cities—Detroit, Michigan; New York, N.Y.; Philadelphia, Pa.; Chicago, Illinois.

District Managers

Should have knowledge of cooling and heating products. Experience in locating and signing distributors and developing sale of products through them to dealers is important. Must be able to hold dealer meetings.

Headquarters Cities — Atlanta, Georgia; Charlotte, N. Carolina; New York, N.Y.; Chicago, Illlnois.

Field Engineers

Must have mechanical and application knowledge of air and water-cooled residential and commercial air conditioning, package and central station equipment. Gas and oil-fired residential warm air heating knowledge desirable. Ability to diagnose mechanical difficulties and improper application essential. Must be able to train distributors and dealers as well.

Headquarters Cities—Dayton, Ohio; St. Louis, Mo.; Detroit, Mich.

Large Air Conditioning Sales and Installation

Experience in layout and design of large air conditioning installations is essential. Must also have ability to meet and work with consulting engineers and architects. Ability to select and layout equipment for new and old construction is desirable.

Headquarters Cities—Chicago, Ill.; Dayton, Ohio; Washington, D.C.; New York, N.Y.; Atlanta, Georgia; Los Angeles, California.

LOOK!

TWO WAYS TO APPLY!

If you are attending the A. R. I. Convention, call or see Mr. J. B. Frost at the Chalfonte-Haddon Hall Hotel in Atlantic City.

Otherwise, write Mr. C. J. Katte, Manager of Industrial Relations, Chrysler Corporation, Airtemp Division, P. O. Box 1037, Dayton 1, Ohio. Give resume of experience and background and send a small snapshot.

Airtemp
DIVISION
CHRYSLER CORP

THE *FORWARD* LOOK IN
AIR CONDITIONING • HEATING FOR HOMES, BUSINESS, INDUSTRY

Warehousemen To Meet In Los Angeles April 9-13

WASHINGTON, D. C.—I. S. Culver, San Francisco, general president of the American Warehousemen's Association, has announced that AWA's 65th annual convention will be held at the Statler hotel, Los Angeles, April 9-13, 1956.

Meeting jointly will be AWA's two divisions—the National Association of Refrigerated Warehouses and the Merchandise Division.

Again featuring its all-panel sessions, NARW assures a "grass roots" approach to all problems affecting the refrigerated warehouse industry, under the chairmanship of F. D. Newell, Jr., NARW president, of Minneapolis, it was stated.

All phases of warehouse operations will be covered in the convention business sessions, it was announced.

WHAT . . WHEN . . WHERE — *A Guide to Coming Events of Interest*

Refrigeration Service Engineers Society (RSES) Annual Meeting
Nov. 25 to 29, Ambassador hotel, Atlantic City

Air-Conditioning & Refrigeration Wholesalers (ARW) Annual Meeting
Nov. 26 to 28, Claridge hotel, Atlantic City

Refrigeration and Air Conditioning Contractors Association (RACCA)
Nov. 26 to 28, Ambassador hotel, Atlantic City

National Commercial Refrigerator Sales Association (NCRSA) 9th Annual Convention
Nov. 28 to 29, The Traymore, Atlantic City

NINTH EXPOSITION OF THE AIR-CONDITIONING & REFRIGERATION INDUSTRY
Nov. 28 to Dec. 1, Auditorium, Atlantic City

National Warm Air Heating and Air Conditioning Association (NWAH&ACA) Annual Meeting
Nov. 28 to Dec. 1, Hotel Statler, New York City

American Society of Refrigerating Engineers (ASRE) 51st Annual Meeting
Dec. 1 to 3, The Traymore, Atlantic City

Nuclear Engineering and Science Congress
Dec. 12 to 16, Cleveland Public Auditorium, Cleveland

National Association of Home Builders (NAHB) Convention
Jan. 22-26, Chicago.

International Heating & Ventilating (ASHAE) Exposition
Jan. 23-25, Sheraton-Gibson, Cincinnati.

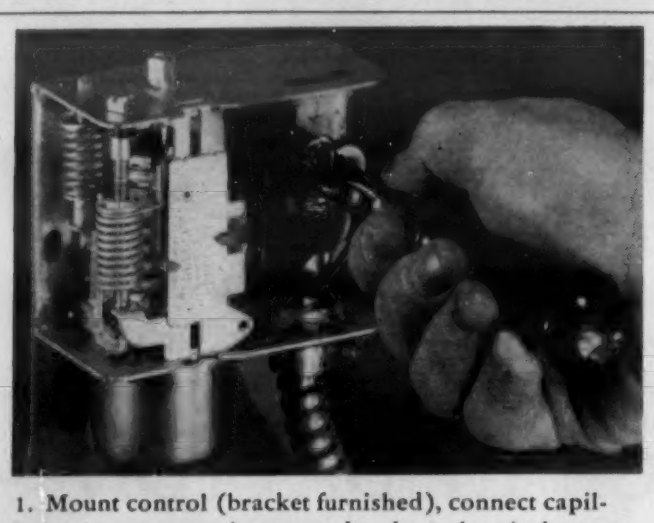
National Frozen Food Convention (NAFFP)
Jan. 29-Feb. 2, Waldorf Astoria, New York City.

The 2nd Canadian Refrigeration & Air Conditioning (CMA) Show
Feb. 1-3, Coliseum, Toronto, Ont., Can.

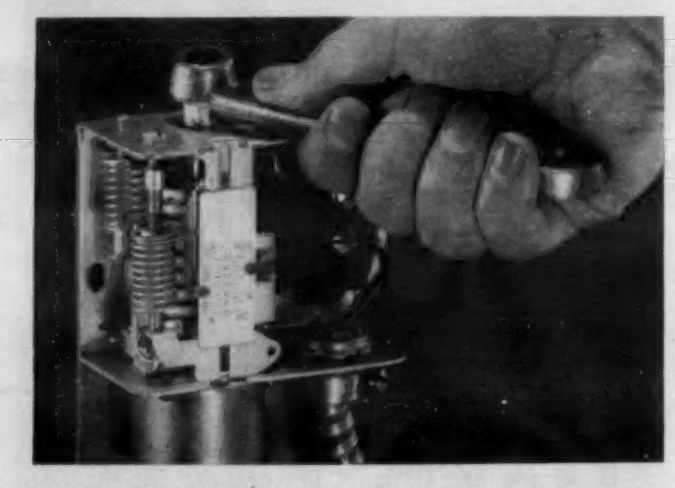
Amana Freezer-Refrigerator Production Boosted

AMANA, Iowa — Production schedules on Amana Refrigeration's new freezer-plus-refrigerator have been boosted in order to meet the heavy volume of orders placed by dealers, it was reported.

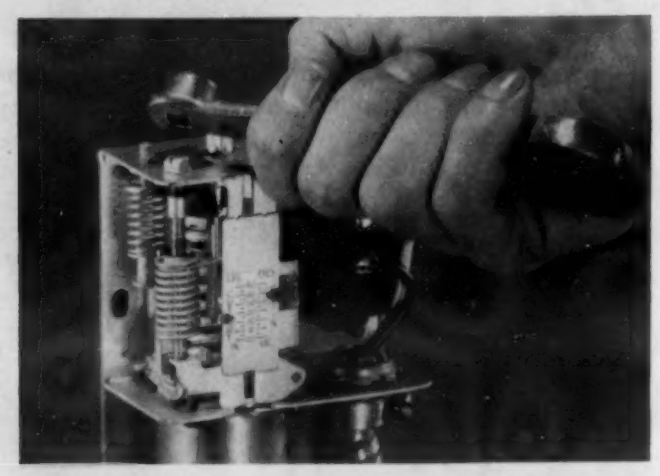
To make possible the increased output, the Amana plant has gone on a nine-hour, six-day week production schedule and is in the process of enlarging its work force, the company said.



1. Mount control (bracket furnished), connect capillary, remove control cover and make 2 electrical connections (terminals are completely accessible).



2. Turn range screw to raise or lower cut-in setting as required (differential does not change).



3. Turn differential screw to raise or lower cut-out setting independently of cut-in setting (this widens or narrows differential).

NOTE: Range and differential screws are slotted for screw driver . . . square for standard service wrench where space is tight.

SAVE TIME, MONEY WITH PENN SINGLE-POLE REFRIGERATION CONTROL

◀ See how easy it is to install and set the Series 270

So easy to install . . . so easy to set! The Penn Series 270 Single-Pole Refrigeration Control features a simplicity of design that means a big saving of valuable "on the job" time. Mounting and connecting the control is easy, fast. Setting it is even faster. Penn's direct-reading, calibrated scale indicates cut-in and cut-out settings . . . eliminates time-consuming addition and subtraction. What's more, the Series 270 offers outstanding performance at an attractively low cost. Ask your wholesaler about the Penn Series 270 Refrigeration Control. You'll be glad you did. **Penn Controls, Inc., Goshen, Ind.**

PENN AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Tyler Appoints Alvarez, Perez To Head Subsidiary

NILES, Mich.—Tyler Refrigeration Corp. has announced the formation of Tyler Refrigeration International, C. A. of Caracas, Venezuela, as a new subsidiary.

Jay Alvarez

Jay Alvarez, formerly export manager for Tyler, has been appointed vice president and sales manager of the new company, which will have its headquarters at 1315 Lake St. in Niles.

Anthony Perez, who has represented Tyler in Central and South America for many years, has been appointed vice president in charge of Latin American sales and will soon take up residence in the Venezuelan city.

Other officers of the new corporation are Robert L. Tyler, president; George H. Mayhew, treasurer; and Sam D. Vander Weg, secretary. Factory facilities at Caracas are not planned at this time.

Robert L. Tyler, Jr., assistant to the president of the parent company, will serve in the capacity of comosario.

Formation of the new company is designed to meet a rapidly increasing demand for Tyler commercial refrigerator products in world markets, according to Mr. Tyler. He said this demand is due to growing recognition of the need for proper food refrigeration.

Liberalization of tariff laws in various nations, and an accelerated trend to self-service or supermarket-type food stores, are also factors, he said.

Hospital To Add Year-Round System

NEW ORLEANS — Complete overhauling of the air conditioning and electrical system for the Charity hospital here is planned to include removal of old air conditioning system and installation of a 1,000-ton year-round air conditioning and heating system. Bids have been opened but contracts have not been awarded. This is a project under the jurisdiction of Louisiana State Building Authority, it was reported.

For more information about products advertised on this page use Information Center, page 54.

NCRSA Reports Ads Cost Up to 9% Of Total Sales

PHILADELPHIA — Commercial refrigeration distributors spend from one-eighth of 1% to 9% of their total sales on advertising, according to a recent survey of 47 members of the National Commercial Refrigerator Sales Association.

A detailed report of the firms' policies on advertising and direct mail has been sent to NCRSA members, announces Marie H. Lawton, executive secretary of the association.

An earlier NCRSA study on overhead expenses for 1954 showed the average amount spent for advertising with .61% of total sales.

Advertising in many forms is employed by the distributors in question. Twenty-six have lettering or sign-boards on their trucks; 21 use special signs on jobs during installation and at store openings, following up with nameplates, decals, etc., on the equipment; 14 have special signs in their own showrooms, and three use billboards, it was reported.

Telephone directory ads are used by 46 members, direct mail by 45, newspaper advertising by 26 and radio by three.

Frequency of mailings by those employing direct mail varies considerably. Some do it once a month. Others do it bimonthly, quarterly, once a year, or at "indefinite" times.

The report also takes up the question of Christmas gifts to customers (17 call this an "effective means of advertising"), clinics by grocers (used by seven), open house for customers and prospects, advertising slogans, and many other matters.

Only two of the 47 members reporting employ an advertising agency regularly, but three do so occasionally.

Westinghouse Appoints Sullivan District Mgr.

SPRINGFIELD, Mass. — Appointment of Paul W. Sullivan as district manager for Westinghouse refrigeration specialties covering distributors in Texas has been announced here by H. F. Hildreth, manager of refrigeration specialties.

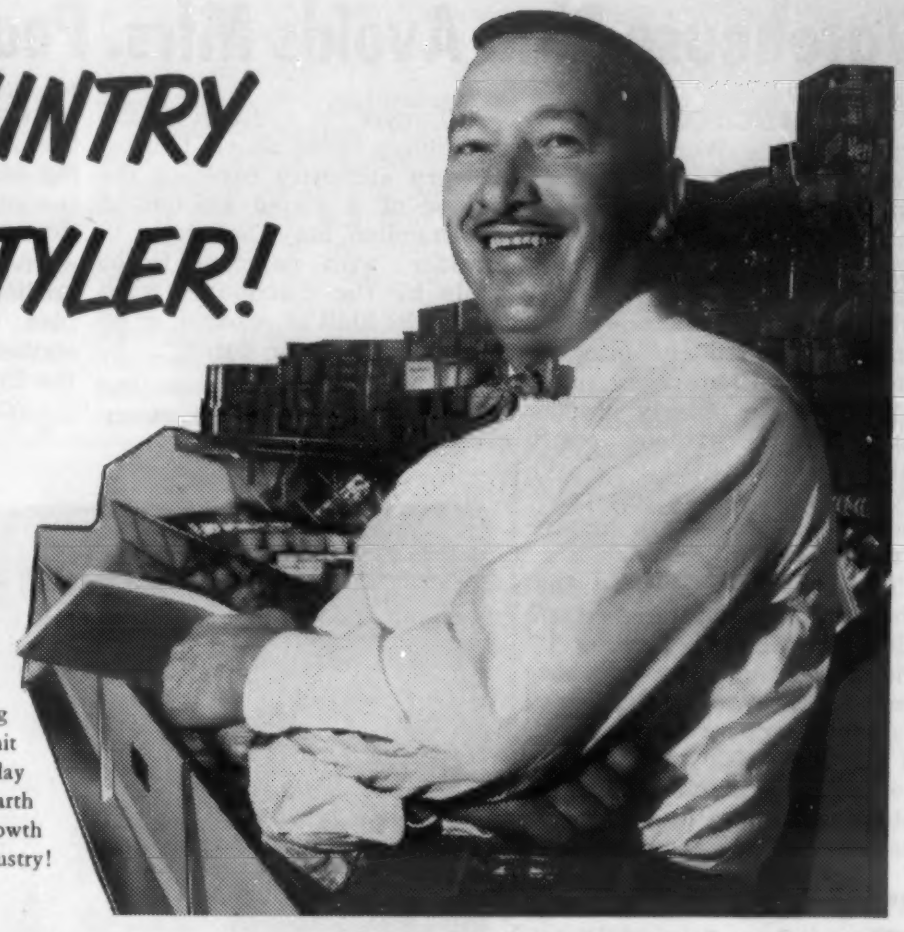
Products which he will handle include room air conditioners, water coolers, and dehumidifiers. Sullivan's headquarters are located at 3217 Purdue St. in Houston.

Since July, 1954, Sullivan has been with the company's refrigeration specialties product group as a sales assistant at the company's Springfield, Mass. headquarters.

Rich Plan Chartered

COLUMBIA, S. C.—Capitalized at $20,000, Rich Plan, Inc. here has obtained a charter from Secretary of State O. Frank Thornton to sell, purchase, and distribute freezer units, allied equipment, and perishable foods and edibles. Donald K. Doxey is listed as president of the new corporation.

ACROSS THE COUNTRY THE TREND'S TO TYLER!



Across the country aggressive Tyler Agents are cashing in on the greatest volume-producing line in the industry!

Tyler is 'way out ahead in Advanced Design leadership—setting the pace in the industry! The Tyler line is complete, covering all food refrigeration requirements from condensing unit assemblies, normal and zero storage and packaging, to display and sales! In design, in features, in real, down-to-earth values—the Tyler line represents the biggest opportunity for growth in the commercial food refrigeration industry!

(Below) A few recent, typical Tyler installations.

OKLAHOMA

Easy-see; easy-bend; easy-reach!

ARIZONA

Faster, easier shopping and loading!

MICHIGAN

Lower condensing unit requirements!

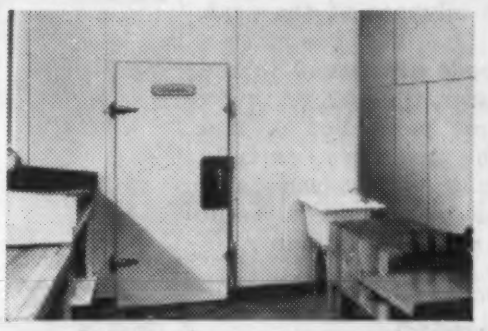
NEW JERSEY

Tremendous mass display!

NEW YORK

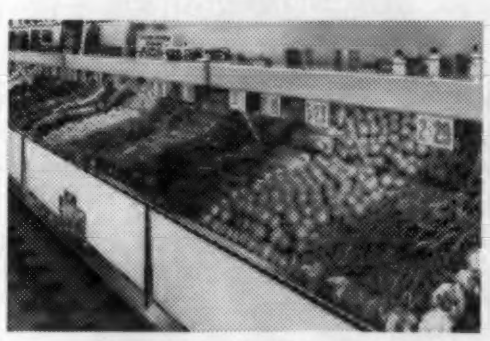
Speed up sales of all perishables!

INDIANA



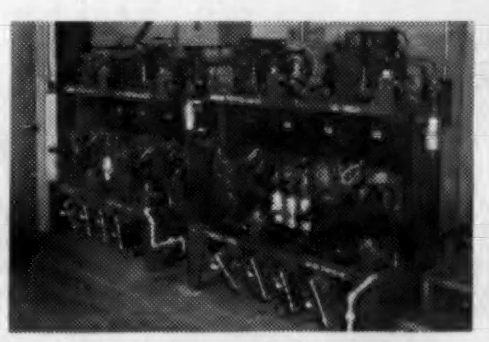
Outstanding value—more for your money!

ALABAMA



Tyler positive High Level Refrigeration!

ILLINOIS



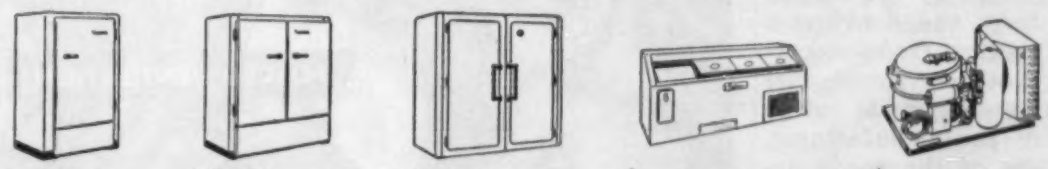
Better, more dependable refrigeration!

CALIFORNIA

Lower operating and maintenance costs!

TYLER 5-STAR LINE

Tyler Reach-In Refrigerators and Freezers help you cash in on the big need for both normal and zero storage of perishables in restaurants, hotels, hospitals, institutions of all kinds.



★ Reach-Ins, Stainless Steel
★ Reach-Ins, White Enamel
★ Storage Freezers
★ Beverage Coolers
★ Condensing Units

TYLER LEADS - others follow!

Prospects everywhere — food stores, restaurants, institutions, etc! Better values, easier sales!

TYLER

The BIG name in food refrigeration

TYLER REFRIGERATION CORPORATION, Niles, Michigan

In Canada—write Tyler Refrigerators, 732 Spadina Avenue, Toronto, Ontario

VISIT THE TYLER EXHIBIT AT THE ARI EXPOSITION IN ATLANTIC CITY — BOOTHS 425-310!

Warehouse Plan Avoids Mfrs. Peaks, Valleys

SAN FRANCISCO—In 1956, says Lawrence Warehouse Co. here, nationwide field warehouse concern, the $64,000 question for the air conditioning and refrigeration manufacturer may well be:

How can I get my month-by-month production out into the hands of distributors, in order to maintain an orderly production schedule, without costly peaks and valleys?

According to the company, there is a satisfactory answer to this puzzler.

"It is, we say, 'Secured Distribution,' a registered term which describes a method by which manufacturers can ship inventory for pre-season storage to distributor's premises, without the credit risk which usually attends open account deliveries," states L. S. Coates, executive vice president.

How Plan Works

"Here is how Secured Distribution—or SD as it is more familiarly known—works for the manufacturer of air conditioning and refrigeration equipment.

"His distributor contracts with Lawrence for the establishment of a field warehouse on his premises. This, by the way, is a simple procedure, and can be accomplished without disturbance of already established business routines.

"To this field warehouse, the manufacturer ships a prearranged full line of his products, as they are completed and packaged, perhaps several months in advance of the peak season.

"The goods are issued to the manufacturer, thereby retaining in his name possession of and title to the inventory, as fully as though the units were still in his own warehouse adjacent to the manufacturing plant.

Merchandise Stored Until Needed

"The merchandise remains in storage and in the care of the warehouse company, until the distributor needs a supply of the stored units. Then, pursuant to any of the following procedures, or variations thereof, the manufacturer permits the warehouse company to make delivery to the distributor:

"1. On receipt by the bonded warehouse custodian from the distributor of his company check, cashier's check, or certified check, to the order of the manufacturer, for the value of the goods delivered.

"2. On receipt by the bonded custodian from the distributor of a trust receipt, trade acceptance, or other commercial paper, endorsed or made out to the order of the manufacturer, for the value of the goods delivered.

"3. On receipt by the bonded custodian of a written or telegraphic order for warehouse release from the manufacturer, at his option.

"This plan guarantees to the manufacturer that his payment terms will be met, because the warehouseman has no authority to deliver, or permit delivery, of the goods without prior written or telegraphic approval from the manufacturer.

"However, in addition to the procedures listed above, blanket delivery authority covering the release of a stated amount of merchandise may be given in advance, with payment to be made by the distributor when his credit limit is reached, or on stipulated days or dates."

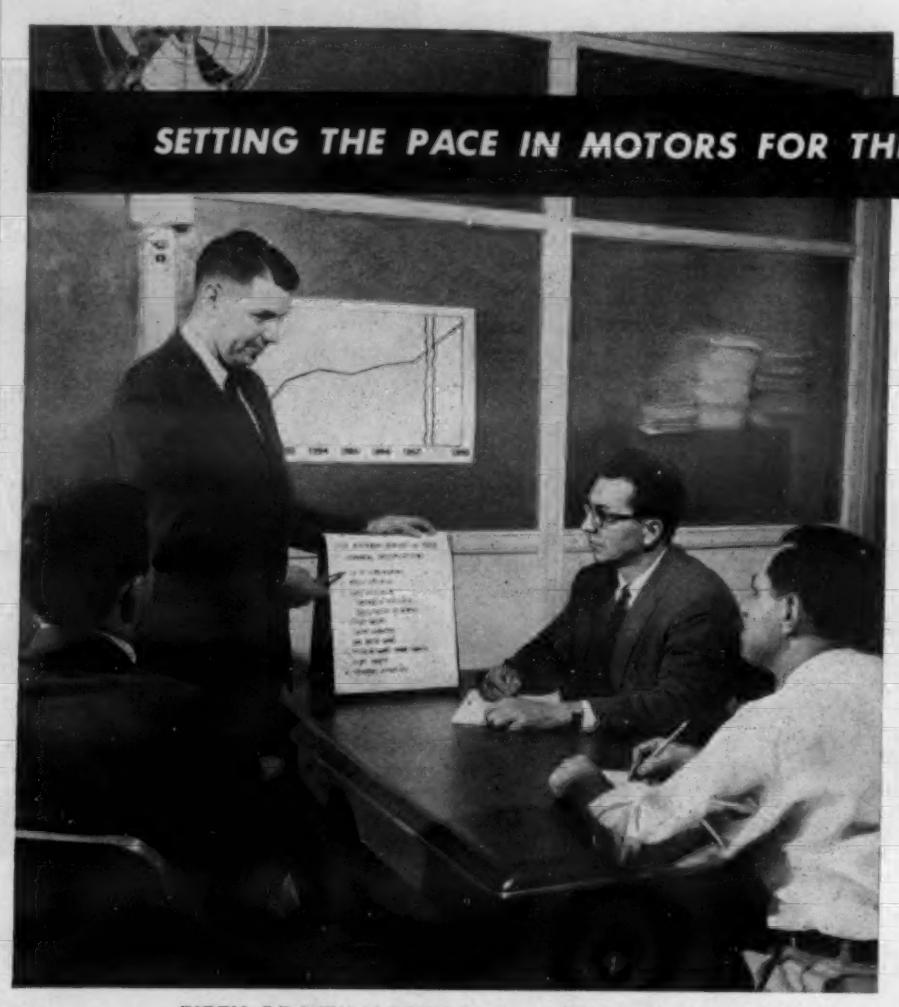
The method of shipment and control guaranteed to a manufacturer by SD has already been embraced by several leading suppliers in the air conditioning field, according to Coates.

"A pioneer in the use of this credit tool is York Corp., whose plan of action was fully described in a study published by the Credit Research Foundation

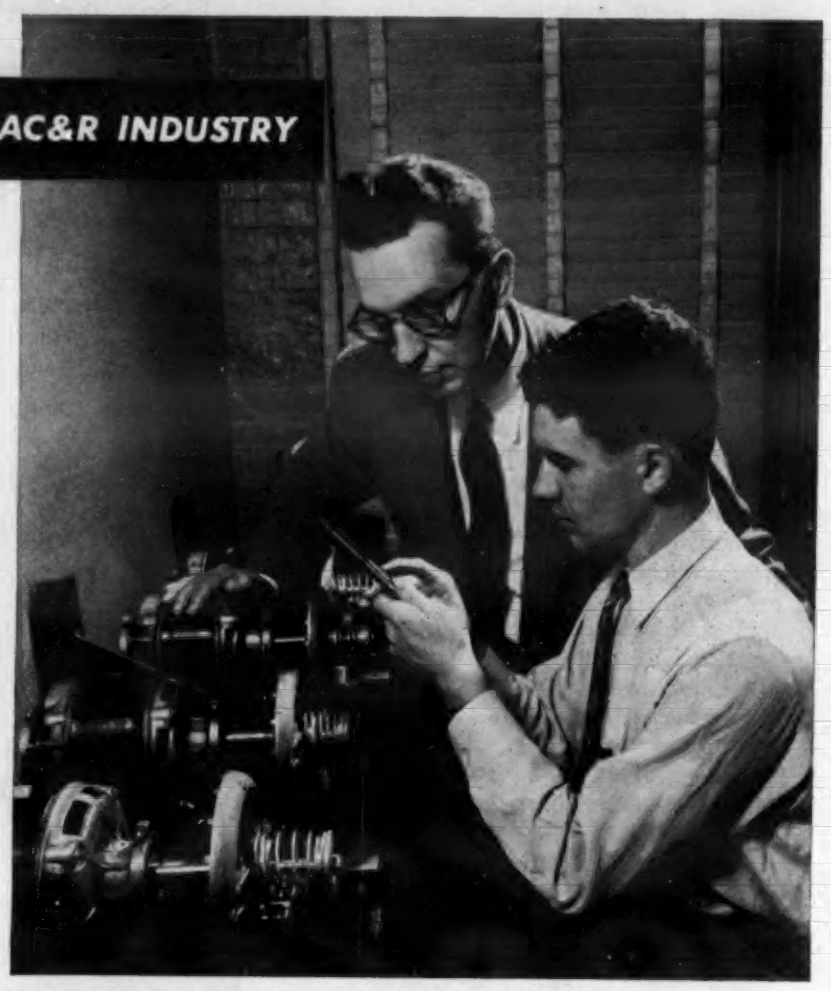
(Concluded on next page)

HOW AIR CONDITIONING and refrigeration equipment is stored in typical Lawrence warehouse under the "Secured Distribution" plan of Lawrence Warehouse Co. is shown here. Distributors draw on the stored units as required since the full line is shipped in an orderly production schedule and held until needed.

SETTING THE PACE IN MOTORS FOR THE AC&R INDUSTRY

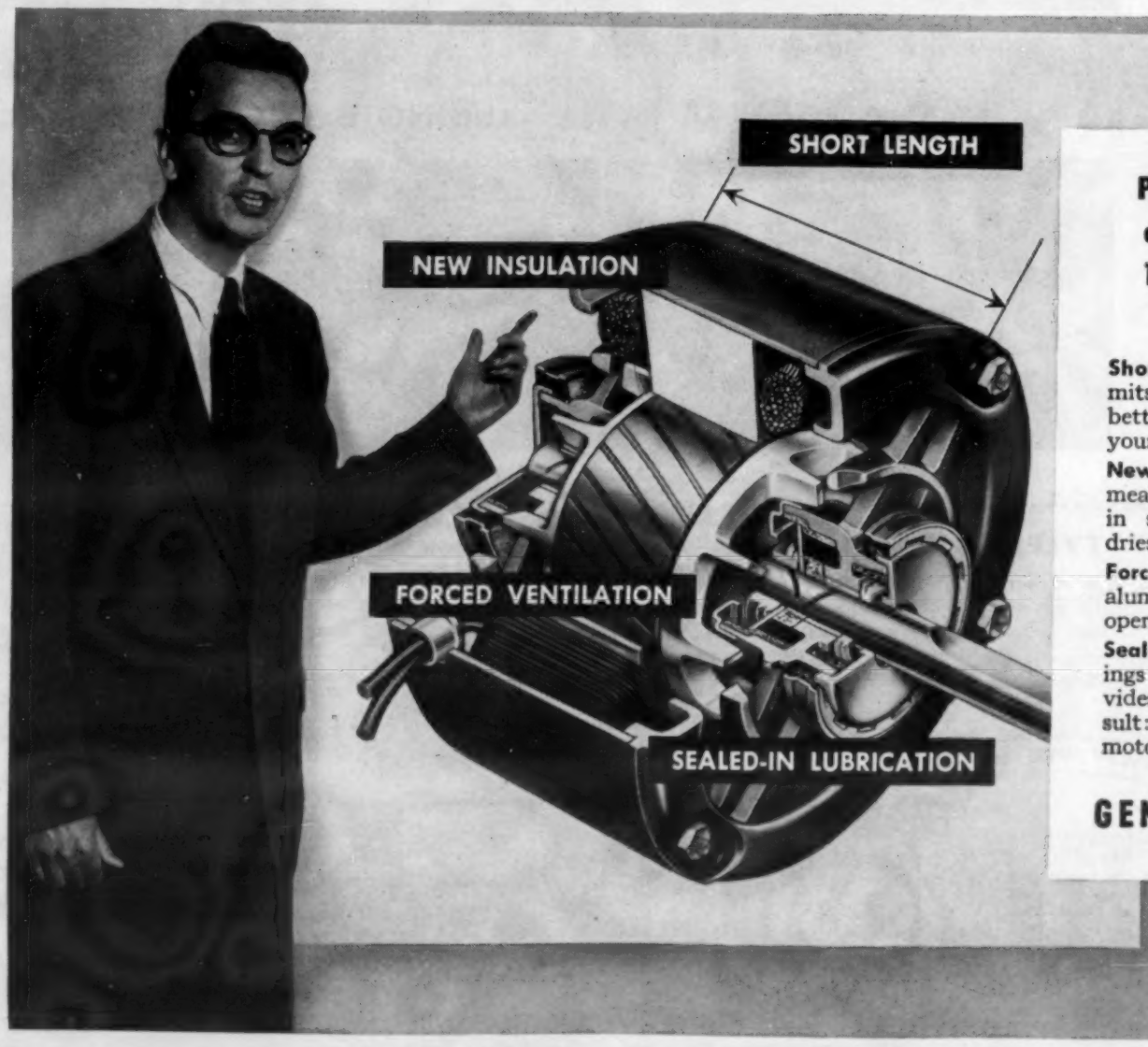


BIRTH OF NEW MOTOR begins with studies by G-E Product Planner (standing) which confirm need to extend economical shaded-pole motor line to larger ratings. Specifications are passed on to G-E Project Engineer.



MANY G-E ENGINEERING SPECIALISTS contribute to new motor, drawing on 19 years of experience in sealed-lubrication design. Here, lubrication expert tests oil pumping action into new bearings as Project Engineer looks on.

Development of new 1/12 thru 1/4 hp



Project Engineer points out advanced features of new 1/12 thru 1/4 horsepower G-E shaded-pole motors

Short length of this new motor permits you to design more compact, better-looking products. Saves on your materials, too.

New epoxy resin insulation permeates every crevice and air space in slots and between windings, dries hard and durable.

Forced internal ventilation from aluminum fan blades means cooler operation, longer life.

Sealed-in lubrication protects bearings from foreign material, provides forced oil recirculation. Result: longer motor life, relief from motor maintenance.

GENERAL ELECTRIC

For more information about products advertised on this page use Information Center, page 54.

Warehouse Plan--

(Concluded from preceding page)

of the National Association of Credit Men," he pointed out.

"York's use of SD was based in part on their recognition of the need for financial aid on the part of distributors, and in part on their desire to level out production."

Coates quoted the Credit Research study as follows:

"Having decided to finance the distributors, York explored various methods of obtaining security during the financing period. Conditional sales contracts, chattel mortgages, and trust receipts were all rejected mainly because of the lack of their party control.

"It was decided that warehouse receipts would provide the desired protection and control, and York asked Lawrence Warehouse Co. to help in the development of a nationwide field warehousing program."

Coates continued:

Advantages for Distributor

"Looking at the other side of the coin—that is, from the distributor's standpoint—there are also many advantages. In an article published in the Jan. 10 issue of AIR CONDITIONING & REFRIGERATION NEWS, which described a field warehousing and retail financing plan adopted by Typhoon Air Conditioning Co., this was said:

"Here are some of the major advantages of the Typhoon Warehouse Plan, as outlined by Clyde Lancaster, owner of a Birmingham distributorship:

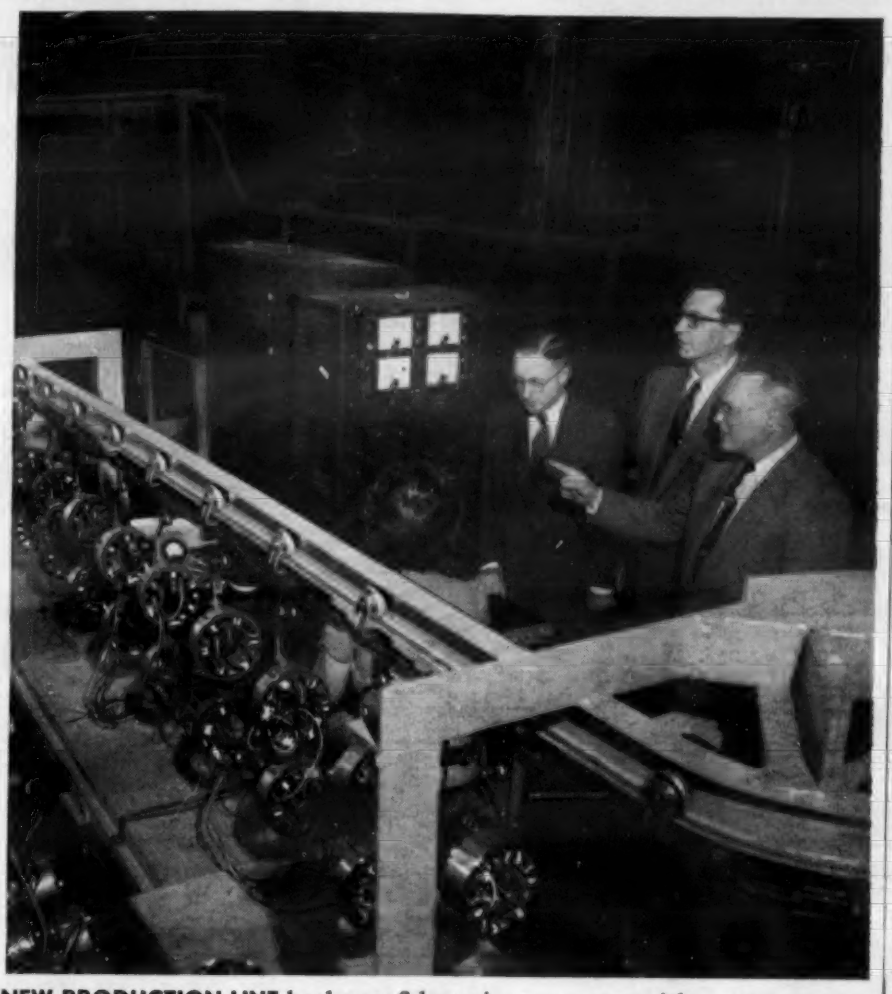
" 'The Warehouse Plan,' he says, 'allows us to order from Typhoon in advance of the season, in truckload lots, thus earning us a special discount. . . . Besides that, this method also gives us the benefit of a substantially lower freight rate. Thus we are able to sell at competitive prices without lowering our services to our customers.

" 'Since our operating capital is not tied up we can also spend money in the winter and especially in the spring to promote sales. . . .

" 'Time and time again, we've been thankful that we had the equipment right at hand when somebody needed it in a hurry.' "

Another advantage from the distributor's standpoint is the fact that the merchandise received in the off-season can be handled into storage with much greater efficieny and at less cost, than is the case when inventory is being received at the height of the busy season, Coates pointed out.

EXHAUSTIVE TESTS prove new motor. When advantages of such features as forced oil recirculation, internal-fan cooling of bearings and windings, and improved insulation are fully demonstrated, motor is released for production.



NEW PRODUCTION LINE backs confidence in new motor with substantial investment. Manufacturing Manager, Project Engineer, and Quality-control Manager observe one of 20 quality checks which guard G.E.'s reputation for dependability.

motors brings G-E shaded-pole economy to your larger fan-drive ratings

How G-E market research and engineering anticipate and meet your motor needs

Anticipating and meeting motor needs of the fast-moving air-conditioning and refrigeration industry is a real challenge. An example of how General Electric achieves this goal is the development of G.E.'s new 1/12- thru 1/4-hp shaded-pole motor line. These more powerful motors extend to your larger equipment the inherent economy and multiple-speed characteristics of shaded-pole motor construction.

Birth of this new motor line began with determination by G-E market-research men of the general specifications needed to meet motor needs of the AC&R industry. Then G-E advanced-development engineers took over.

Drawing on skills of G-E specialists in every phase of motor design, these engineers created a compact motor line with the best combination of efficiency, starting and pull-up torque, and speed stability yet achieved in shaded-pole design.

Today, a new G-E production line—an investment made by G.E. especially to meet your needs—is producing these motors in volume.

These new motors are just one example of G-E shaded-pole motor leadership. The G-E combination of experienced product planners, skilled design engineers, and unmatched development facilities is now working to meet your motor needs of tomorrow.

For full information on G-E shaded-pole motors, contact your nearby G-E Apparatus Sales Office today. Or write for Bulletin GEA-6134 to Sect. 704-47, General Electric Co., Schenectady 5, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Carrier Builds Air Conditioned Office In Dallas

DALLAS—A modern air conditioned office building will be constructed here by Carrier Corp. to house district headquarters for its Machinery and Systems and Unitary Equipment Divs., it was announced here recently by Cloud Wampler, chairman and president of Carrier.

The new single-level structure incorporating some 11,000 sq. ft. of office space will also provide 9,000 sq. ft. of area for light assembly and storage.

Designed by George L. Dahl, local architect and consulting engineering firm, it will be located at the corner of North Central Expressway and Manderville Rd., about eight miles from downtown Dallas. J. E. Morgan & Sons of Dallas is general contractor.

Carrier plans to break ground on about Nov. 15 and completion is scheduled for next spring. The structure and site will be occupied by the company under a long-term lease.

Key executives who will direct activities from the new center are Oscar Mehl, district manager, Machinery and Systems Div., and John N. Gillham, district manager, Unitary Equipment Div.

An outstanding feature of the building will be a striking 30-ft.-high tower section which will serve as an entranceway and will also house the central air conditioning machinery providing year-round comfort.

Visitors will be able to observe the equipment in operation through a glass wall along one side of the lobby.

The top portion of the tower section will be occupied by a cooling tower. On the adjacent exterior wall, long vanes of aluminum will admit air to the cooling tower, providing a unique architectural combination of beauty and utility.

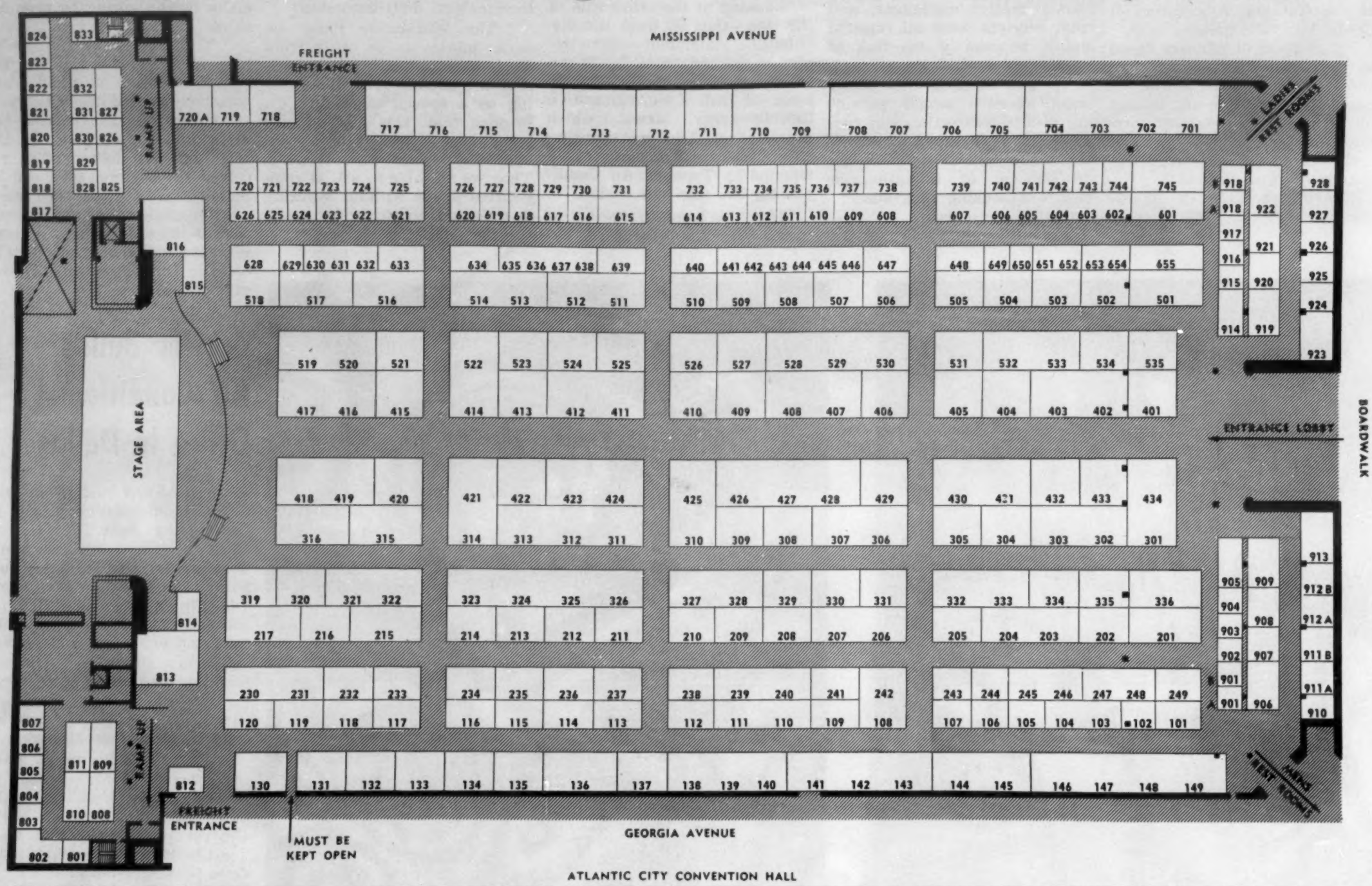
The building will be construted of steel and masonry with a marble and Roman brick exterior. It will be largely windowless.

Heart of the cooling machinery will be one of Carrier's brand-new automatic absorption refrigerating machines, which can be started by the push of a button or by thermostat or time-clock.

A gas-fired boiler manufactured by Carrier's Bryant Div. will provide steam for winter heating and for the absorption cooling system.

For more information about products advertised on this page use Information Center, page 54.

Companies Exhibiting In Greatest Industry Show



LIST OF EXHIBITORS

COMPANY	BOOTH
A-P Controls Corp.	713
Ace Cabinet Corp.	532-533
Acme Industries, Inc.	423-424
Addison Products Co.	406
Aerofin Corp.	102
Aerovox Corp.	914
Air-Conditioning and Refrigeration Institute	905
Air Conditioning & Refrigeration News	507
Air Conditioning & Refrigeration Wholesalers	917
Airserco Mfg. Co., Inc.	634
Airtemp Div., Chrysler Corp.	Stage
Alco Valve Co.	327-328
Allen-Bradley Co.	247-248
Allin Mfg. Co.	814
Alter Co., The Harry	105
Alumiseal Corp.	718
American Air Filter Co.	724
American Brass Co., The	330
American Coils Co.	602-603-604-605-606
American Gas Machine Co.	244-245-246
American Glass Refrigerator Door Co., Inc.	734
American Name Plate & Mfg. Co.	832
Aminco Refrigeration Products Co.	641
Anderson Chemical Co.	113
Ansul Chemical Co.	422
Anemostat Corp. of America	804
Arrow-Hart & Hegeman Electric Co.	916
Bacharach Industrial Instrument Co.	904
Bailey & Perkins Co.	114
Bally Case & Cooler Co.	522-414
Baltimore Aircoil Co., Inc.	242-108
Barnebey-Cheney Co.	912-A
Barr Mfg. Co.	714
Bastian-Blessing Co.	131
Bell & Gossett Co.	519-520
Berna Corp.	828
Betz Corp.	217
Binks Mfg. Co.	134
Brewer-Titchener Corp., The	535
Brookside Products Co., Inc.	925
Brundage Co., The	827
Brunner Mfg. Co.	426-427-428
Bryant Div., Carrier Corp.	404
Bundy Tubing Co.	308
Bush Mfg. Co.	323-324-325-326
Calgon, Inc.	815
Carbonic Dispenser, Inc.	335
Carrier Corp.	302-303
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Century Electric Co.	508
Character Refrigerators Co.	733
Chase Brass & Copper Co.	725
Chemical Solvent Co.	502
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Coleman Co., Inc., The	613-614
Colonial Alloys Co.	902
Combustion Engineering, Inc.	136-B
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Cory Corp.	503
Creamery Package Mfg. Co., The	215
Curtis Refrigerating Machine Div., Curtis Mfg. Co.	421-314
Cutler-Hammer, Inc.	518
Davison Chemical Co.	432
The Dayton Rubber Co.	510
Dean Products, Inc.	410
Deering Air Conditioning Co.	214
Delco Products Div. of G-M Corp.	236
Denbo Engineering & Sales Co., Inc.	920
Detroit Controls Corp.	301-434
Detroit Stamping Co.	921
Dole Refrigerating Co.	144-145
Domestic Engineering Co.	209
Dow Chemical Co.	509
Dryomatic Corp.	135
E. I. du Pont de Nemours & Co., Inc.	516
Edwards Engineering Corp.	923
Electric Auto-Lite Co.	826
Electrosonic Protective Instrument, Inc.	817
The Emerson Electric Mfg. Co.	239-240
Emporium Industries, Inc.	705
Essex Wire Corp.	235
Eston Chemicals Div., American Potash & Chemical Corp.	331
Evans Mfg. Corp.	238
Fasco Industries, Inc.	208
Federal Refrigerator Mfg. Co.	110-111
Ferro Corp.	926
Flexible Tubing Corp.	216
Fogel Refrigerator Co.	249
Foster Refrigerator Corp.	611
Frank-Dewey Co., Inc., The	907
Frankell Mfg. Co.	812
Frick Co.	623
Friedrich Refrigerators, Inc.	745
Frigid Igloo Mfg. Corp.	211
Frigidaire Div., G-M Corp.	655
Furnas Electric Co.	726
Gem Refrigerator Co.	911-A
General Chemical Div., Allied Chemical & Dye Corp.	401
General Controls Co.	420
General Electric Co., Air Conditioning Div.	316
General Electric Co., Apparatus Dept.	138-139-140
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Glenco Refrigeration Corp.	202
Halstead & Mitchell	505
Harv-O-Metic Sales Co.	833
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Henry Valve Co.	608-609
C. V. Hill & Co., Inc.	610
Holsclaw Bros., Inc.	740
Howard Refrigerator Co.	133
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Jackes-Evans Mfg. Co.	109
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Jewett Refrigerator Co., Inc.	723
Jordon Refrigerator Co.	429
Kason Hardware Corp.	107
Keco Industries, Inc.	433
Kelvinator Div., American Motors Corp.	411-412
Kenmore Machine Products, Inc.	309
Kerotest Mfg. Co.	413
Kirsch Co.	243
Koch Refrigerators, Inc.	742
Kramer Trenton Co.	701-702-703-704
Lamb Electric Co., The	706
Larkin Coils, Inc.	407-408
Lau Blower Co., The	233
Lehigh Mfg. Co.	635-636-637-638
Lewin-Mathes	601
Libbey-Owens-Ford Glass Co.	137
Linde Air Products Co., Div. of Union Carbide & Carbon Corp.	524
Lipman Div., Yates-American Machine Co.	521
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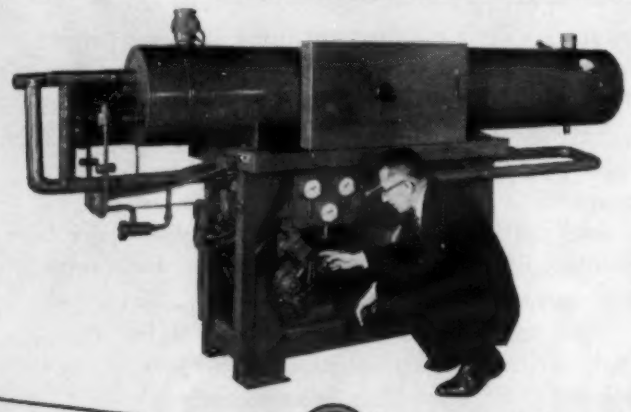
Lonergan Mfg. Co.	653-654
McCord Corp.	640
McCray Refrigerator Co., Inc.	206-207
The McIntire Co.	112
McQuay, Inc.	306-307
Madden Brass Products Co.	721
Maintain Store Engineering Service, Inc.	624
The Marby Co.	927
Marco Industries, Inc.	115
The Marley Co.	320

(Concluded on next page)

Acme
INDUSTRIES, INC.
JACKSON, MICHIGAN
manufacturers of
QUALITY
air conditioning and refrigeration equipment since 1919

ACME AIR CONDITIONING REFRIGERATION
recognized industry-wide



NEW C series FLOW-THERM®
...complete packaged chillers with capacities from 20 thru 175 tons

Here's the new line that incorporates the Acme Dry-Ex chiller with a star-insert tubing, an advanced design, moderate speed compressor and other proven Acme components that together pack more chilling capacity in smaller size units than ever before possible.

another outstanding new line — Acme Flow-Cold packaged chillers, capacities 3 thru 20 tons

SEE THEM IN BOOTHS 423-424, ATLANTIC CITY

For more information about products advertised on this page use Information Center, page 54.

Exhibiting Firms--

(Concluded from preceding page)

COMPANY	BOOTH
Marlo Coil Co.	430-431
Marsh Corp., Jas. P.	737-738
Maurey Mfg. Corp.	722
Meier Electric & Machine Co., Inc.	210
Melchior, Armstrong, Dessau Co.	409
Metals & Controls Corp.	230-231
Microtron Corp.	103
Mills Industries, Inc.	813
Milwaukee Electric Cool Corp.	744
Minneapolis-Honeywell Regulator Co.	305
Mitchell Mfg. Co.	621-622
Morriss Sheet Metal Works	106
Morrison Products, Inc.	117
Mueller Brass Co.	405
Mueller Climatrol Div., Worthington Corp.	321-322
National Gas Equipment Co., Inc.	808
National Commercial Refrigerator Sales Assn.	901-B
Nesbitt, Inc., John J.	711
Olin Mathieson Chemical Corp.	315
Olsen Mfg. Co., C. A.	526
Pacific Lumber Co., The	649
Paragon Electric Co.	651-652
Peerless of America, Inc.	130
Peerless Equipment Corp.	801
Penn Controls, Inc.	506
Pinnacle Equipment Corp.	241
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Ranco, Inc.	334
Reading Tube Corp.	203-204
Redmond Co., Inc.	731
Refrigeration & Air Conditioning Contractors Assn.	918-A
Refrigeration Appliances, Inc.	712
Refrigeration Engineering, Inc.	201
Refrigerating Specialties Co.	212
Remco Inc.	648
Reynolds Metals Co.	402-403
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Rochester Products Div., General Motors Corp.	232
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Sealed Unit Parts Co., Inc.	120
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Shana Mfg. Co., Inc.	911-B
Sherer-Gillett Co.	735
Sherman Associates, Inc., C. Q.	912-B
Silvercraft, Inc.	825
Simpson Electric Co.	820
Sporlan Valve Co.	332-333
Sprague Electric Co.	910
Square D. Co.	739
Sta-Rite Products, Inc.	924
Standard Refrigeration Co.	534
Sub-Zero Freezer Co., Inc.	647
Sun Oil Co.	234
Superior Foundry, Inc.	607
Superior Valve & Fittings Co.	504
Tecumseh Products Co.	528-529-530
Temprite Products Corp.	319
Tenney Engineering, Inc.	336
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Torrington Mfg. Co.	416-417
T O T Towers, Inc.	620
Tranter Mfg., Inc.	418-419
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United Refrigerator Co.	615-616. 617-618
United States Air Conditioning Corp.	531
United Wire & Supply Corp.	633
Utility Appliance Corp.	523
Vaco Products Co.	736
Velocity Power Tool Co.	612
Victor Products Corp.	213
Victory Metal Mfg. Corp.	709-710
Viking Air Conditioning Div., National-U. S. Radiator Corp.	919
Viking Copper Tube Co.	304
Virginia Smelting Co.	525
Henry Vogt Machine Co., Inc.	720-A
Wabash Corp.	639
Wagner Electric Corp.	237
Wagner Tool & Supply Corp.	809
Worden Specialty & Machine Co.	719
Walton Laboratories, Inc.	922
Warren Co., Inc., The	527
Westinghouse Electric Corp., Mansfield	313
Westinghouse Electric Corp., Pittsburgh	311-312
White-Rodgers Electric Co.	513-514
Wilcolator Co., The	906
Wolverine Tube, Div. of Calumet & Hecla, Inc.	415
Worthington Corp.	517
York Corp.	511-512
York-Shipley, Inc.	104

THERE'S SALESPOWER BEHIND THESE SWINGING DOORS

Salespower, because crystal clear glass and brilliant Slim-line flood-lighting show off your merchandise at its sales making best. Barrdors build the extra impulse-to-buy that builds profits for you. There's fine quality behind BARR-DORS, too. Permanently mirror-finished frames that just won't sag — and lifetime shelf construction that makes short work of maintenance, also help to make BARRDORS the wise investment they have proven themselves to be.

Fog Proofed electrically for high humidity areas. Sparkling clear glass in BARRDORS can be maintained even in high humidity areas by electrically controlled FOG PROOFING. Fool Proof, fog proofing.

U. L. (APPROVED)

AND BEHIND THESE SLIDING DOORS
self closing sliding barrdors

BARRDORS silk-smooth glide results from a patented system of overhead track, steel ball rollers and cable tension device that has become the envy of the industry and the pride of the store — all over America.

Both sliding and swinging BARRDORS are available in

Standard and **King** size **SERVUE** doors

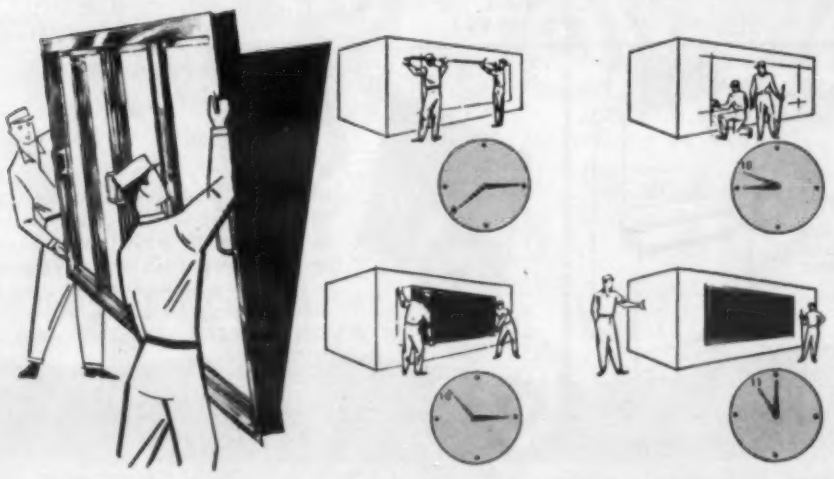
Today is the day to find out how BARRDORS can serve you. See your BARR dealer— or write directly to the factory.

BARR MFG. CO.

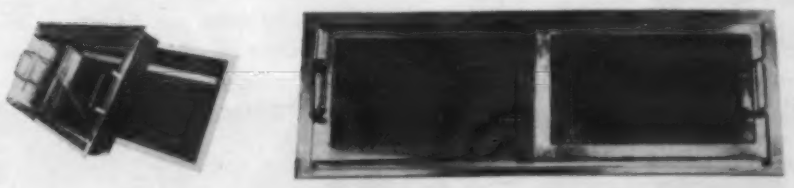
Write for Fully Descriptive Literature
8925 San Leandro Street, Oakland, California

UNITIZED FRAME MAKES INSTALLATION EASY

Just five simple steps and a very few hours install any size or any combination of BARRDORS: 1. Cut the opening to size. 2. Face interior of opening with two by fours. 3. Uncrate door frame and slip it into place. 4. Fasten the screws. 5. Connect U.L. approved light fixtures.



Service or self-service sliding doors are equally easy to install. They slip into place and fasten securely in minutes. And . . . they serve faithfully for years.



California Dairy Proposal--

(Concluded from Page 1)

dairy products, including financial assistance and extension of credit to customers.

One section states that in the marketing of dairy products, "the sale by a distributor of equipment or other property . . . by deferred payment contract . . . whether directly or indirectly, through a subsidiary or otherwise, to retail stores or other wholesale customers, or the purchase of the interest of a vendor or his assignee or the interest of another distributor in any such contract . . ." shall be made under certain terms and conditions.

One of these is: "Each such contract shall contain a provision that the wholesale customer is not obligated to take or purchase the dairy products of the distributor by reason of such transactions."

Another section sets up provisions pertaining to "any lease, or agreement to lease any property . . . by a distributor directly or indirectly . . . to a dairy products customer."

One of these provisions is: "The lease or agreement to lease such property upon terms that title to such equipment shall pass to the customer at the end of the lease period is hereby prohibited."

The section also contains this provision: "Where a customer for dairy products leases or agrees to lease such property from a distributor of dairy products, such customer shall not be obligated to purchase any milk or dairy products as a condition of the terms thereof. . . ."

Excerpts from Text

Parts of the text of the proposed rules and regulations follows:

PROPOSED RULES AND REGULATIONS OF THE DIRECTOR OF AGRICULTURE OF THE STATE OF CALIFORNIA UNDER CHAPTERS 16 AND 17 OF THE AGRICULTURAL CODE

2121. No distributor of dairy products shall, directly or indirectly, through a subsidiary or otherwise, make any money loan to a wholesale customer. This section shall be construed to prohibit a distributor of dairy products from providing money to a dairy products customer for such customer's use in cashing checks or other short term use, whether or not compensation is received by such distributor for the use of such funds.

2122. No distributor of dairy products shall, directly or indirectly, through a subsidiary or otherwise, guarantee the payment of any obligation of any customer, whether as a cosigner on a promissory note or other obligation of such customer, or in any manner.

2123. No distributor of dairy products shall, directly or indirectly, through a subsidiary or otherwise,

(a) Assist financially or otherwise, any customer or person who purchases dairy products, to sell or dispose of any interest in the business or property of such customer or person, or

(b) Assist financially or otherwise any other person or acquire any interest in the business or property of any customer who purchases dairy products.

2124. No distributor of dairy products shall own or control, directly or indirectly, through a subsidiary or otherwise, any promissory notes, bonds, debentures, mortgages, preferred stock or other preferred securities of, or preferred interest in any dairy products customer except as expressly permitted by these regulations.

2126. In the marketing of market milk, cream, and dairy products, the sale by a distributor of equipment or other property, whether real or personal, by deferred payment contract, including but not limited to conditional sales contract, whether directly or indirectly, through a subsidiary or otherwise, to retail stores or other wholesale customers, or the purchase of the interest of a vendor or his assignee or the interest of another distributor in any such contract for the sale of such equipment or other property to a retail store or other wholesale customer shall be made under the following terms and conditions:

(a) Such transactions must be on the basis that one-third of the total obligation shall have been paid as a down payment in cash and the balance of the contract shall be payable in not to exceed eighteen equal monthly payments.

(b) In the event of the purchase of any such contract which provides for the payment of the balance due thereunder in less than eighteen monthly payments, no change shall be made in the same. However, if the balance due under the said contract is payable in more than eighteen equal monthly payments, the contract shall be amended at the time of the purchase thereof by the distributor to provide for the payment of the said balance due thereunder in not more than eighteen equal monthly payments.

(c) In any of the above cases the distributor shall file a duplicate original of each such contract with the Director of Agriculture.

(d) Such contracts shall show the actual down payments secured, whether in cash or otherwise. If the down payment is other than cash, the contract shall further show the basis for credit allowed and if by trade-in of other equipment or property, the description, type, style, model number, manufacturer, year of manufacture, and the market value of such equipment or property at the time of its trade-in.

(e) Each such contract shall contain a provision that the wholesale customer is not obligated to take or purchase the dairy products of the distributor by reason of such transactions.

2127. Any lease, or agreement to lease any property whether real or personal, by a distributor directly or indirectly, through a subsidiary or otherwise, to a dairy products customer shall be subject to the following provisions:

(a) The lease or agreement to lease such property upon terms that title to such equipment shall pass to the customer at the end of the lease period is hereby prohibited.

(b) Any lease or agreement to lease such property shall be in writing and must include a provision that title shall not pass by virtue of such lease or lease agreement.

(c) Where a customer for dairy products leases or agrees to lease such property from a distributor of dairy products, such customer shall not be obligated to purchase any milk or dairy products as a condition of the terms thereof, and every such lease or lease agreement shall contain a provision to the effect that the dairy products customer is not obligated thereby to purchase any dairy product of the lessor of such property.

(d) Payments under any such lease or lease agreement shall be made monthly and shall be in the same amount for each month during the entire term or leasehold period provided for in such lease or lease agreement.

(e) A duplicate original of any lease or agreement to lease such property shall be filed with the Director of Agriculture within ten days after the effective date of such lease or agreement.

Drayer-Hanson Names Alpert Personnel Mgr.

LOS ANGELES — Drayer-Hanson, Inc. has appointed Leonard Alpert as personnel manager, according to H. T. Hunt, vice president and general manager.

Alpert, since joining Drayer-Hanson two years ago, has been assistant personnel manager. He fills the vacancy left by Dwight Prouty, Jr., who recently joined Fisher-Neblett & Co., labor relations counselor.

Sherer-Gillett Buys Land For Future Expansion as 1955 Volume Hits Peak

MARSHALL, Mich. — Sherer-Gillett Co., manufacturer of commercial display and storage refrigerators, has purchased 80 acres of land at the western city limits of Marshall to provide room for future growth.

John H. Coolidge, president, said the company has been looking for land which would be available when the firm decided that new manufacturing facilities were necessary.

"We have absolutely reached the physical limit for any major expansion at our present location," he stated.

Coolidge said sales of the company's refrigerators for 1955 would undoubtedly show the highest unit total and dollar volume ever made.

AMERICA'S NEW PACE-SETTER FOR 1956!

Chip-Freeze

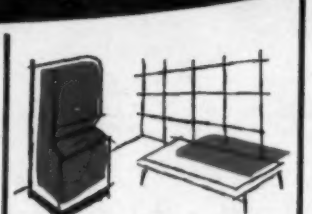
AUTOMATIC ICE FLAKER

with 5 SCIENTIFIC innovations that will make SALES history!

1. DESIGNED TO MAKE ICE CHIPS ONLY!
Advanced mechanical design features a mono-structure ice-making assembly which assures sparkling-pure ice flakes at all times! New design eliminates "air lock" problem forever!

2. NO DEEP REACHING!
Ice chips are always at your waist level! No stretching or stooping anymore (as with conventional equipment). All the ice flakes you want —easily accessible! Another reason why CHIP-FREEZE is ideal for any establishment where ice flakes are required.

3. MOST SANITARY UNIT MADE!
NEW ice is produced at the TOP of the CHIP-FREEZE unit so that there is no possibility for accumulation or decay of old ice! (Most equipment today has ice storage section at *bottom* of unit; thus, scum and dirt formations in that section contaminate fresh ice easily.)



4. A COLOR FOR YOUR DECOR!
Choose from six new decorator colors to harmonize with any interior, anyplace, anywhere! Space-saving cabinet design in beautiful hi-bake enamel color schemes makes CHIP-FREEZE unit adaptable for any location!

5. MAXIMUM OUTPUT GUARANTEED!
Up to 95% savings! Imagine, 560 lbs. per day —ice flakes for as little as 2¢ per bushel or 6¢ per hundred lbs. (depending on local power and water rates)! Pay only for the ice you need. Handling and labor costs cut drastically.

priced below competition!

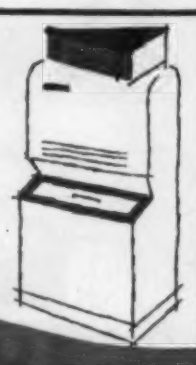
CHIP-FREEZE pays for itself out of savings. Imagine! Superior quality . . . and still priced below competition. You can own the ice-making machine market in your area and show profits you never believed could exist in this field . . . with America's fastest growing year-round business! Another sales feature: CHIP-FREEZE ICE CHANNELS are used in refrigerated display cases to avoid spoilage and enhance the appearance of produce or meat.

fully automatic

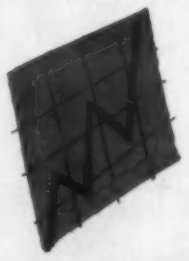
AS EASY AS "A-B-C" TO INSTALL AND MAINTAIN!
• Mechanism is easily accessible from front and rear • Machine turns itself on and off • Fills itself automatically as ice is used • Minimum cost installation • Ideal for any type of water system • No costly plumbing or special material required • Low-pressure cut-out protection in event water supply system is temporarily interrupted • Compressor is extremely well ventilated • Nothing to wear out • Only one moving part under refrigeration • No complicated controls.

take advantage of optional "extra profits" advertising feature!

Special rotating display apparatus atop each CHIP-FREEZE machine can be used to boost your own sales. Or, if desired, this display space can be sold to one of your suppliers to advertise his product and earn you extra profits at same time!



sales-tested plan



MAKES SELLING "CHIP-FREEZE" SIMPLE, PROFITABLE!
The "CHIP-FREEZE PLAN" takes all the mysteries out of selling ice-making equipment and diminishes sales resistance. We will supply you with all promotional material to create leads as well as inquiry-tested ads and mailers. The "CHIP-FREEZE PLAN" is backed by a national advertising and public relations program and means a *new life* for history-making ice-making sales!

Chip-Freeze COLD CORPORATION OF AMERICA
Manufacturers of Ice Making Equipment

For more information about products advertised on this page use Information Center, page 54.

Service Shop 'Yellow Page' Advertising Can Have More 'Zip' Through Proper Preparation

BOULDER, Colo.—How well do you plan your telephone directory listings and advertising? Ernest W. Fair, merchandising consultant, has made a study of such advertising and has come up with some suggestions designed to make the next telephone directory advertisement pull more business.

"The yellow pages, backed by the various telephone companies continuing promotion, afford the place for the new customer to look to find the firm he needs in a hurry," Fair says.

"As he looks he finds not one, but a number of service shops listed and since he ordinarily knows little about any of them his selection is based primarily on the shop with the most compelling advertising therein.

"Making one's own advertising different and unusual so that it stands out from those of competitors is therefore of considerable importance. Experience has shown successful service shop owners that there are a number of essential points to keep in mind in designing that particular advertisement."

Making It Different

Here are some of the suggestions gleaned from actual advertisements:

1. Try to make the ad layout different than the conventional ones used by most shops. In one Denver directory, R. A. Haines & Co. do it with an ad set diagonally where others are set square. Sam's Refrigeration Service attracts attention through the use of black and gray patches to set off the ad. Richey's and Ideal Refrigeration use a cartoon of a polar bear, while Craig Factory Refrigeration Services uses illustrations of freezers to catch the eye of the reader.

2. Spot the Telephone Number so that it is easy to read and easy to use. C & M Refrigeration Service of Odessa, Texas does this by placing the telephone number in a big circle in one corner of the advertisement. The phone number that is buried in a mass of copy will be dialed far less frequently that the one which stands out and is easy to see from three to four feet away. The reader will seldom bother to write down a number and take it to the telephone.

3. Provide Night Service. If you offer a night service telephone number, you are certain to have first chance at many new customers for those customers will assume that those service firms not so listing a night number to not have it.

4. Brag About the Shop in the Ad. If you fail to "blow your own horn" you can be sure that no one else will. But it should be done with tact and good taste and in the fewest number of words possible. Holbert Electric Co. of Tulsa has done it well with copy which reads:

"All Types of Refrigeration Service. Over 27 Years' Experienced Commercial and Domestic—Air Conditioning—Genuine Parts—Guaranteed Work on All Makes."

List Your Specialties

5. List the Makes You Specialize in Servicing. The owner will always be more apt to call a service shop that caters to the brand he has in his place of business.

Refrigeration & Appliance Service Co. of Salt Lake City has headed an advertisement "Refrigeration Service — All Makes — Commercial — Domestic" and then lists, in the lower left hand side of the layout, the trade names of 10 leading makes of commercial refrigeration with each preceded by a big black dot.

A Map Is Helpful

6. Use the Ad To Help Spot the Shop. Many refrigeration service show owners publish pictures of their places of business. Some reproduce small maps showing the location. This helps the reader find the shop, but more important it calls attention to the name and telephone number of a refrigeration service shop the reader has seen many times in driving, but which he has never remembered.

If engravings are deemed too expensive by the shop owner, he can use a single line of type such as "Across the street from the post office" or identification with some similar landmark.

What About Price?

7. Say Something About Price. The amount of money the customer will have to spend is vitally important to him. Most shops refer to price in general terms, for it is difficult to set up prices that have to stand up for several months. Best way is a single line of copy in the ad assuring that the firm offers the finest service available at reasonable or standard prices.

Each of the seven foregoing factors are important in designing a successful classified telephone directory for the service shop. But none should overshadow the three big important points which should appear in bold type: the name of the shop, its address, and telephone number.

Chip-Freeze
chipped ice
is always at your
WAIST LEVEL
...and
"Deep-Reaching"
forever!
EYE APPEAL,
SALES APPEAL,
ICE APPEAL for:
• Supermarkets • Restaurants
• Dairies • Bakeries • Hotels
• Fish and poultry markets
• Fresh produce markets
• Florists • Hospitals
• Soda Fountains
• Retail Stores
• Clubs
Wherever and whenever flaked ice is needed--the market will look to "CHIP-FREEZE"
COCURA General Offices: 1371-89 N. Branch St. Chicago 22, Ill. Michigan 2-6816
EXCLUSIVE FRANCHISES STILL AVAILABLE!
We're looking for SOUND manufacturer's representatives, distributors and dealers interested in building a volume with a substantial, nationally-recognized manufacturer to meet the tremendous growing demand for automatic ice-making equipment.
WRITE, WIRE OR CALL TODAY!
COLD CORPORATION OF AMERICA
1371-89 N. North Branch St.
Chicago 22, Illinois
Gentlemen:
I am interested in knowing more about "CHIP-FREEZE" automatic ice flakers.
☐ MFG. REP. ☐ DISTRIBUTOR ☐ DEALER
Others, please specify
Name
Firm
Address Phone
City Zone State

Nixon Chief Engineer For Jamison Door Co.

HAGERSTOWN, Md. — Edward A. Nixon has been appointed chief engineer of the Jamison Cold Storage Door Co.

E. A. Nixon

Before joining Jamison, Nixon was chief engineer of the Marine Mfg. & Supply Co., New Brunswick, N. J.

Neylan Sets Up Export, 'Closeout' Company

NEW YORK CITY—William J. Neylan recently announced his resignation from Servel International after 10 years' service to form his own refrigeration and air conditioning sales organization.

Called Bell Virginia Corp., the new firm located at 150 Broadway here specializes in export sales of refrigeration, air conditioning, and communication equipment, Neylan said.

The firm also handles sale of manufacturers' and distributors' close-outs of inventory stock. These will be offered to domestic and export outlets, it was reported.

Selection, Servicing of Cooling Tower Motors Involves Number of Factors

ST. LOUIS—Problems in the selection and maintenance of motors for cooling towers were outlined by Philip Oldberg, Jr. of the Marley Co. before the recent AIEE conference here on application of motors to space heating and cooling equipment.

As with many products, there is usually a compromise between the ideal motor for a cooling tower and that often selected on a practical basis, Oldberg implied.

"Undoubtedly a totally enclosed, chemical type enclosure may be desired for this application, but there is need for an open type motor that will give satisfactory service to the user who must consider price," he said.

"There are two general types of mechanical draft cooling towers," Oldberg explained. "The forced draft design has the fan and mechanical equipment mounted in the dry air stream which offers considerable advantage. The induced draft tower has the fan and gear reduction unit (not the motor) in the humid air leaving the tower, but has the advantage of discharging the air at a higher velocity. This high discharge velocity tends to prevent recirculation of the discharge vapors back into the inlet of the tower.

"On 2 and 3-ton towers our company uses a 1/12-hp. motor with the fan mounted directly on the shaft. The motor is totally enclosed, not because this enclosure is necessarily required, but because public opinion seems to demand it. An open motor has been undergoing an accelerated test in our laboratory for over a year without failure. Our motors are supplied with built-in overload thermostats since experience indicates that users seldom install overload protection.

On 5 to 15-hp. Motors

"Built-in overload thermostats are also used on our 5 through 15-ton tower motors. An open motor is preferred on these towers because of its service factor. The fans can overload the motors if high winds blow against the air discharge or if there is too much pressure drop in air ducts. The motor is mounted in a box inside the tower and drives the fan through V-belts.

"Because of the different voltages and number of phases which might be required, these motors are not installed on the towers prior to shipment. Our distributors carry a stock of motors from which the proper selection can be made at the time of sale," he said.

"V-belts are used on larger towers with up to 20-hp. motors and 9-ft. diameter fans. These motor are mounted with the shaft vertical. Some of these motors are exposed to the elements, so totally enclosed motors with drain holes and drip covers are used. Other motors are mounted in a protecting box where open enclosures may be used.

"Motors with relatively low starting and plugging torques are desired. This is to minimize the chances of the belts being thrown off the sheaves when they stretch during starting. Fans with gear drive are used with motors from 3 to 75 hp. and with fans from 8 to 22 ft. in diameter. Whenever gear drive is used, the motor and gear reduction unit are mounted on a unitized steel support to assure continued shaft alignment.

"The motors can be of protected or splashproof enclosure, but are usually totally enclosed with a chemical type enclosure preferred. Low starting and plugging torque motors are also desired on gear drive units to reduce stresses and increase the gear life," Oldberg declared.

"Cooling towers are usually sold complete with motors, but controls are supplied by the purchaser. This enables the purchaser to obtain the controls for the complete system from one source which offers some advantages. It is occasionally wiser to have the controls included in the purchase of the tower. An example is a two-speed consequent pole motor where two-speed starters are needed. Electricians have substituted two single speed starters and caused the motor to fail.

"Two-speed starters have also been installed without a time delay when going from high to low speed. The omission of this delay can cause belts to be thrown and also reduces the life of the reduction gears," Oldberg warned.

Maintenance Methods

"Once a tower is installed, its service life is dependent upon the operation and maintenance practices of the user.

"Towers on air conditioning systems are operated only during the hot season of the year. The tower is usually located in an isolated spot away from the other air conditioning equipment. Because of this it is best to have rugged trouble-free equipment.

"The motor should be able to operate at least a year without re-lubrication. It should be possible to re-lubricate the motor unless it can operate at least five years on its initial lubrication. It would be a good idea for motor manufacturers to design a foolproof grease relief to prevent damage from overgreasing due to failure to remove a relief plug. The grease relief should be designed so that new grease would force any moisture out of the bearing housing.

"Most splash-proof or drip-proof motor troubles can be traced to corrosion or chemical fumes, while most totally enclosed motor troubles can be traced to condensed water being unable to get out of the motor. The new water-resistant insulations and greases should reduce this type of failure in cooling tower motors.

"Some motor failures and troubles are due to what must be called misapplication. A number of recent complaints on motor overheating or failure have been traced to an operating voltage of around 200 volts. On checking, it was found the customers ordered 208-volt motors and were supplied with 220/440-volt motors tagged 'good for 208 volts.' These motors are not marked to show what current they should draw for full load at the lower voltage. This information is needed to set the variable pitch fans," Oldberg declared.

GE AIR-WALL SYSTEM
HOME HEATING AND COOLING
SWITCHING TO G-E HOME HEATING AND COOLING...MADE MY NEW HOME POSSIBLE
FEATURING YEAR 'ROUND AIR CONDITIONING WITH AIR-WALL

Good things happen when you "sign up" with G.E.

If politicians were home heating and cooling dealers, they'd all switch to G.E. That's because they believe in the adage "if you can't beat 'em—join 'em."

And a good idea for dealers who are tired of tilting at windmills or bucking headwinds is to jump on the G.E. "brandwagon"...and enjoy the advantages that belong to the man who hangs the G-E monogram over his shop. For example;

- *A full line of the finest home heating and cooling units made.*
- *Units designed for every house, no matter what the design, type, size, location or climate.*
- *Units that carry the famous G-E Warranty offering you and your prospects more protection mileage than any other in the business. And that includes a 5 year protection plan on the sealed-in system of the cooling unit.*

Like most G-E dealers, you'll find that the good things in life come a lot easier and faster when you work hand-in-hand with G.E. Send the coupon below. It is just possible there is a juicy franchise still open in your territory. When you get the full story on the great G-E line and the "Franchise with a Future"...we think you'll be glad to "join us."

HOME HEATING & COOLING DEPT.

Progress Is Our Most Important Product

GENERAL ELECTRIC

*Reg. Trade Mark of General Electric Co.

GENERAL ELECTRIC CO.
HOME HEATING & COOLING DEPT. AC-115
BLOOMFIELD, N. J.

Yes, I want the facts on why "signing up" with G.E. will step up my sales and progress.

NAME_____

TYPE OF BUSINESS_____

ADDRESS_____

CITY_____ COUNTY_____ STATE_____

For more information about products advertised on this page use Information Center, page 54.

Packaged Conditioner Promotion Stressing 'Pay Later' Plan

NEW YORK CITY—In large advertisements run recently in *The New York Times* to promote pre-season sales of 1956 packaged air conditioners, two companies stressed that savings can be realized under their "order now—pay later" plans.

Pointing out that 1956 Airtemp packaged air conditioners are ready now, Chrysler Corp.'s Airtemp Div. here advised in a full-page ad that "now is the time for you to investigate our pre-season savings plan."

3 YEARS TO PAY

"No payments—except small down payment—until next summer . . . 3 years to pay!" the ad stated. It said there are "several other excellent credit plans to suit your needs, including:

"1. 15-year fully tax deductible rent — depreciation plan available in selective instances.

2. Pay when you use—during successive summer periods plan."

LIBERAL TRADE-IN

The ad said pre-season savings also apply on "our exclusive 'trade-in' offer which enables you to get liberal allowance for your present air conditioner and replace it with a modern, new Chrysler Airtemp."

In the other ad, Apparatus Distributors, Inc., Brooklyn, said "now is the time to buy General Electric packaged air conditioning . . . take advantage of our 'install-now' savings plan . . . buy today—start paying in May after small down payment."

Both ads contained a coupon for reader use to request a free survey and estimate.

Kansas City Component Maker In New Plant

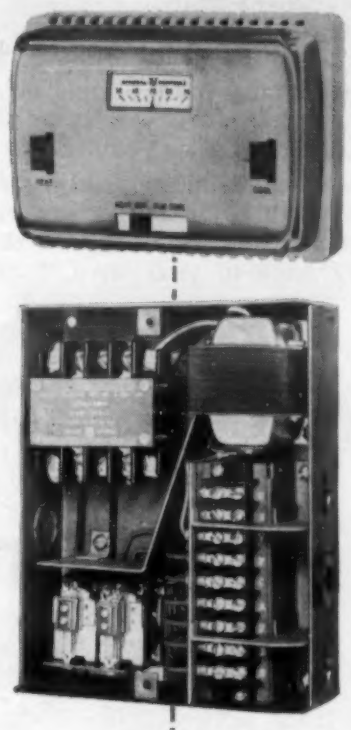
KANSAS CITY, Mo. — A-J Mfg. Co., grill and register maker for the air conditioning and warm air heating industry, has bought a new building at 18th and Askew which will triple its floor space, and furnish 15,000 sq. ft. of factory and office space. The firm had been located at 2119 Washington for 25 years.

any heating and cooling control system is all right when it's all General Controls

The best heating and cooling job is better *automatically*— with one source and one responsibility for the *entire* control system

Sometimes the whole *is* greater than the sum of its parts. For example, when a heating and cooling control system is General Controls from first to last, you have the advantage of top quality in each part. *And* the added advantage of having each control component custom-engineered to work best with *every other* component. All this plus the incalculable advantage of knowing there is a single responsibility for perfect performance.

A single source simplifies the manufacturer's design and procurement problems, solves the jobber's stocking problems, provides the dealer with sales-building consumer acceptance for his products. The result: a *better* end product, *easier* to sell.

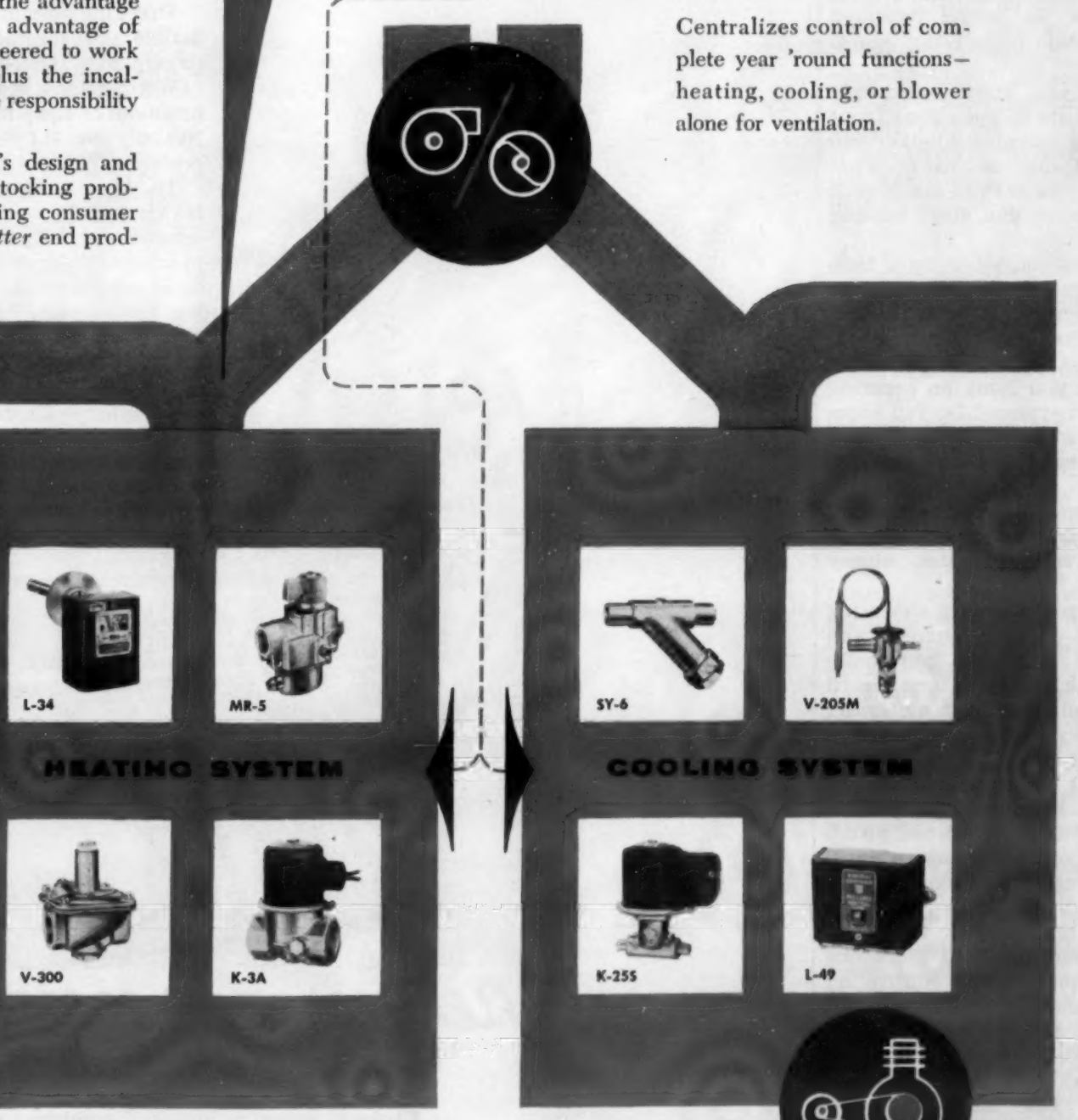


T-231
Combination Heating and Air Conditioning Thermostat provides single point temperature control.

RS108A241
Master Control Panel provides prewired installation for any combination of motor controls. Underwriters' Laboratories Approved.

Centralizes control of complete year 'round functions—heating, cooling, or blower alone for ventilation.

A complete product line with **ONE SOURCE OF SUPPLY, ONE RESPONSIBILITY**



General Controls *Automatic* HEATING AND AIR CONDITIONING CONTROLS

1930 25 YEARS 1955 — 1955 GC SILVER JUBILEE YEAR

See us at our booth #420 in Atlantic City

GENERAL CONTROLS
MANUFACTURERS OF AUTOMATIC CONTROLS FOR HOME, INDUSTRY AND THE MILITARY

GENERAL CONTROLS • PERFEX CONTROLS
40 FACTORY BRANCH OFFICES SERVING THE UNITED STATES AND CANADA

FIVE PLANTS: IRON MOUNTAIN, MICHIGAN • GLENDALE, CALIFORNIA • BURBANK, CALIFORNIA • SKOKIE, ILLINOIS • GUELPH, CANADA

For more information about products advertised on this page use Information Center, page 54.

Inventory Bought Now Will Increase In Value Due To Materials' Rising Cost, Dealers Counseled

CHICAGO — "Make 1956 a better year by investing in all the inventory your working capital will permit," was the advice given 150 air conditioning dealer personnel here recently.

Andrew F. Ward, packaged products sales manager of Worthington's Air Conditioning and Refrigeration Div. addressed the group from central and midwestern states at a regional meeting at the Sheraton hotel.

Sheet Metal, Copper, Motors Cost Rising

With rising costs of materials such as sheet metal, copper, motors, etc., Ward pointed out that inventory investment now would increase in value proportionate to the demand increase.

"It's surprising," he said, "just how much increased business develops from the memory of last summer's unbearable heat. Talk it over with your banker. You'll find him interested in making loans to buy inventory that will increase in value."

8 Checkpoints Offered

Ward offered eight helpful checkpoints to help air conditioning dealers and wholesalers show a profit for the coming year. These checkpoints he referred to as sound business fundamentals underlying operations:

1. Do you know accurately what it costs to open your front door every morning whether you sell anything or not? What "nut" do you have to crack each month before you start making a profit?

2. Have you made up a 1956 budget yet to determine the minimum organization you require to handle volume you expect to get?

3. Are you using an accurate job record system? Do you know exactly what materials have been charged out on each job and how much labor was required against your estimate? Do you know at the end of each installation how much money you made?

4. Do you maintain a running inventory of all equipment and material? Do you physically spot check the inventory record of all equipment and material? Every single sheet of metal, a bucket of paint, a thermostat that can't be accounted for reduces the most sensitive part of your operation, your net profit.

5. Do you keep service parts and expensive small items such as controls, under lock? I know a dealer in Louisville whose inventory shrunk $10,000 in one year by not properly controlling the issuance of sensitive items. That was $10,000 less net profit for the year—enough to put a son or daughter through school.

6. Do you have any new equipment that has been "cannibalized" to get repair parts? Any such equipment represents completely frozen working capital until you get it back in saleable condition.

7. Have you gone through your shop lately and accumulated all your scrap metal, old units you've taken out, etc.? Scrap metal brings pretty good prices today. Why not have a fall house cleaning and convert your scrap units into more net profit dollars.

8. Do you have any old model equipment in inventory? If you have you've got working capital tied up that reduces in value every day.

Merchandising Principle Is To Move Items

The principle of merchandising used in department stores applies equally well to your business:—"Sell it—mark it down—or give the stuff away—but move it."

Why not go over your inventory, and make a deal to move any equipment that falls in the non-current class so that you'll get added money back in your business to use for more profitable sales.

"These," Ward said, "are just a few of the things that can have an important effect on your net profit—the kind of important details that are necessary to running a profitable business in a real competitive market.

"And by all means take all the advantage you can of the coming price increases by protecting yourself with inventory."

Bryant-Texas Appoints Sprouse Vice President

DALLAS — James Sprouse has been appointed vice president of Bryant-Texas, Inc., distributor of Bryant air conditioning systems, it was announced by President Robert J. Johnson.

In addition, Sprouse will serve as eastern division sales manager of the company's 52-county area, Johnson said.

Touring Van Loaded with Samples Ups Distributor's Sales 50% In Month

NEW YORK CITY—A showroom on wheels helped raise appliance sales 50% last month for Norge's White River Junction, Vt. distributor.

R. B. Muller, president of Twin State Electrical Supply Co., reported to Norge Div., Borg-Warner Corp., that he took the 1956 Norge line to dealers in a large van instead of holding open house in his office. The method proved to be one of his most effective business-getters, he said.

Muller loaded the van with samples of the new line, and toured the state with his traveling showroom.

In 51 towns he visited 76 dealers, more than had ever viewed the new lines at previous open houses. Moreover, Muller's showroom on wheels was visited by many dealers not previously contacted. Many of these are now selling the Norge line, Muller said.

Displayed in the traveling showroom were three automatic washers, three dryers, two refrigerators, a water heater, and a conventional washer. Muller also featured Norge promotional materials.

Only dealers were permitted to enter the showroom. But the huge van, covered with large Norge signs and parked on the main town thoroughfare, drew much public attention.

"An aggressive merchandising campaign which catches the public attention is bound to create dealer interest," Muller said. "And once dealers saw the new line, they were ready to buy."

Greatest advance in

Worthington's exclusive new FLEXI-COOL easy-to-handle sections...

That's the story in a nutshell! The FLEXI-COOL line—unique in design and completely flexible, goes together like building blocks—covers installations that ordinarily would require many different types of equipment.

Worthington's new FLEXI-COOL—in 2, 3, 5, 7½ hp sizes—permits you to stock a minimum of equipment yet solve any home, office or store air conditioning installation. Not only does FLEXI-COOL reduce the size of your inventory (and simplify your stocking problems) but it also automatically cuts your inventory costs.

The new FLEXI-COOL line consists of three basic sections—cooling cycle, filter and blower—plus accessory packages. A combination of these three basic sections (or a remote duct coil, and water or air-cooled condensing unit when needed) permits you to solve any type of installation. Sections fit together as a single compact unit . . . or can be installed separately in any location. With a choice of vertical or horizontal positioning, you can easily obtain the air intake and delivery best suited to the installation. That's how flexible the FLEXI-COOL line is.

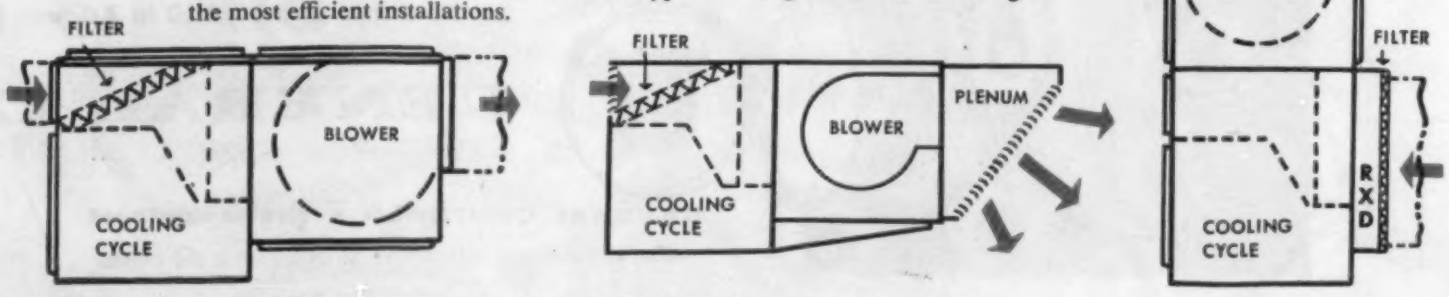
Once installed, you can count on FLEXI-COOL's reliable Worthington compressor to provide the kind of service-free operation that makes your job easy and assures complete customer satisfaction.

Get all the facts on the new FLEXI-COOL line and on Worthington's complete line of residential, commercial and central station equipment. Write Worthington Corporation, Air Conditioning & Refrigeration Division, Sec. A.5.55—AC, Harrison, N. J. A.5.55

Worthington's new FLEXI-COOL air conditioning line is sectional, completely flexible. Cooling cycle, filter and blower sections fit together like building blocks for either vertical or horizontal positioning. (Sections may also be installed separately in any location.) New unit adapts to water and air-cooled applications—all types of space limitations. In 2, 3, 5 hp sizes, FLEXI-COOL is less than 2 feet wide, only 2 feet high and 38 inches long. Overall dimensions slightly larger for 7½ hp unit.

FLEXI-COOL FITS TOGETHER LIKE BUILDING BLOCKS

Choice of vertical or horizontal positioning permits unlimited combinations of FLEXI-COOL sections. Shown are three typical arrangements for obtaining the most efficient installations.



For more information about products advertised on this page use Information Center, page 54.

Drayer-Hanson Opens Sales-Order Dept.

LOS ANGELES—Announced as now in operation in the Sales Div. of Drayer-Hanson, Inc. here, manufacturer of air conditioning and refrigeration equipment, is newly-created department designed to streamline this company's service functions.

Designated the sales-order department, the new section combines the functions of the order entry, order schedule, order service, sales record, stock, and claims sections.

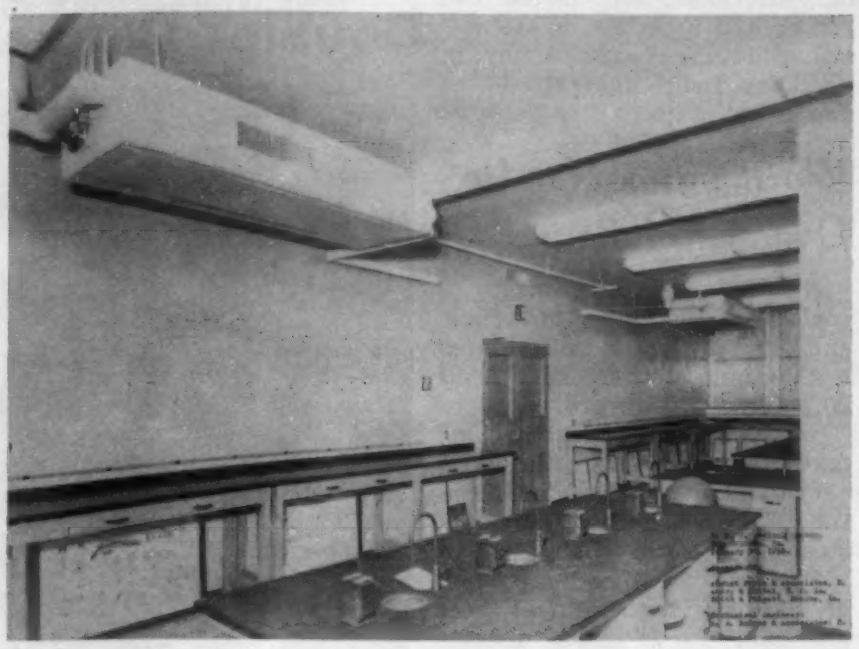
Announced also is promotion of A. A. Gonzales, transferred from the company's experimental division to act as general supervisor of the new department, under direction of Fred E. Schmuck, company's national sales manager, the announcement concluded.

Medical Center Installation Combines Room Units, Central Duct System

NEW ORLEANS — One of New Orleans' most impressive new buildings, the Louisiana State University Medical Center, is fully air conditioned with a system combining individual room units and a separate central duct system, it is reported by the United States Air Conditioning Corp.

Designed by August Perez & Associates, Andry & Feitel, and Smith & Padgett, architects, the nine-story building was completed in early 1955.

A total of 130 offices and laboratories are equipped with UsAirco "Modu-aire" room unit air conditioners to provide individual control and independent operation for each room. These units are used for sensible cooling only, during the warm weather season, and for heating ing the winter months, if required, UsAirco said.



WALL-HUNG AIR CONDITIONERS shown above are positioned in the ceiling of a laboratory in the new Louisiana State University Medical Center. A total of 130 offices and laboratories are equipped with United States Air Conditioning Corp. "Modu-aire" room units with individual control.

Chilled water, at 50°, is supplied by two 300-ton centrifugal water chillers, and hot water is the heating medium. During mild weather in spring, fall, and winter, a 75-ton reciprocating compressor-chiller unit operates, so that some interior space can be cooled while exterior rooms require heat.

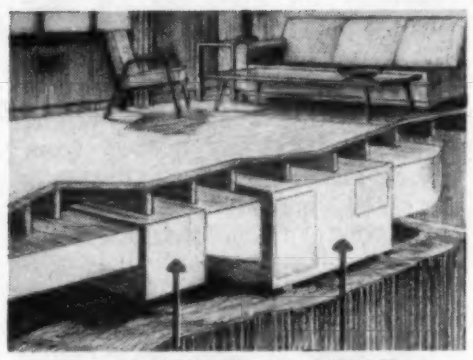
UsAirco reports that 136 Modu-aires of the recessed, free-standing, and ceiling-suspended type have been installed in the new structure. Although the room units provide no dehumidification in this application, the separate duct system distributes dehumidified cool air in summer and heated fresh air in winter.

A. R. Salzer & Associates was mechanical engineer for the building and E. M. Babst Co. was mechanical contractor for the job.

air conditioning design!

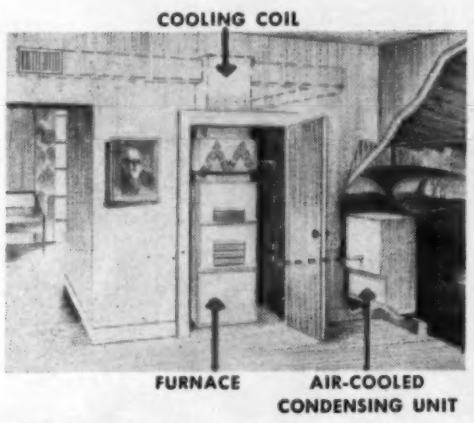
air conditioning line comes in solves any commercial or residential job!

FLEXI-COOL FITS ANY SPACE

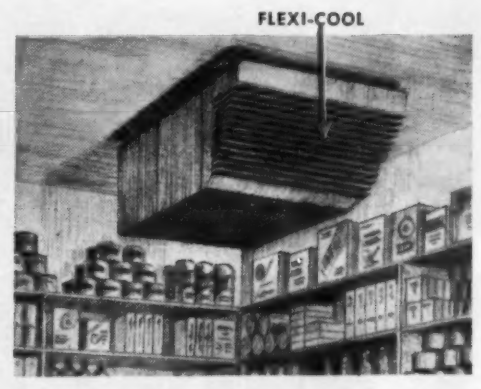


FLEXI-COOL FURNACE

Crawl space: Here, FLEXI-COOL hangs in horizontal position from floor joists, is easily connected into existing warm-air heating system.

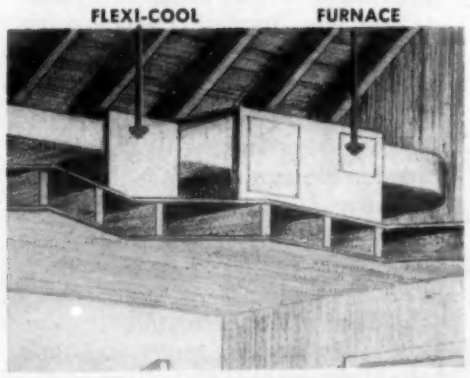


Outside the house: In this remote-type FLEXI-COOL installation, cooling coil in ductwork over furnace is connected to an outside air or water-cooled condensing unit.

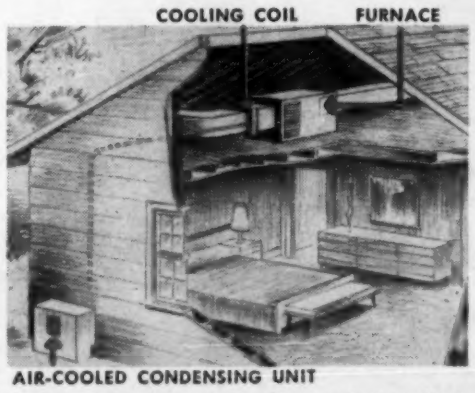


On a ceiling: FLEXI-COOL relieves valuable floor space for other duties by hanging from ceiling. Here, a desk or display counter can be added (or retained).

FLEXI-COOL MEETS ANY SITUATION



Dry heat: FLEXI-COOL cooling cycle can be connected to existing warm-air furnace, blower and filters.



AIR-COOLED CONDENSING UNIT

Water-short area: Cooling coil installed in ductwork can be connected to waterless, electric air-cooled condensing unit.

Wet heat: With complete FLEXI-COOL unit installed in attic, inexpensive ducts along ceiling distribute cool air.

See Worthington Exhibit at AIRE Show Booth No. 517

WORTHINGTON

CLIMATE ENGINEERS TO INDUSTRY, BUSINESS AND THE HOME

Columbus' 135-Room Lincoln Lodge To Be Air Conditioned

COLUMBUS, Ohio—Construction was recently begun on a 135-room air conditioned, commercial, suburban hotel, first in this area, according to a report in the public press.

To be known as "Lincoln Lodge" in Lincoln Village, the principal wing of the structure will be two stories with 90 rooms. A restaurant will accommodate 135 persons and an outside terrace will have dining facilities for 80.

The trend to suburban building was cited in announcing the new hotel.

Airtemp Names Hill To Post In Dallas

DAYTON—Appointment of F. G. Hill as Dallas assistant regional sales manager has been announced by the Airtemp Div. of Chrysler Corp. He fills a new post created as part of the company's recently announced expansion program.

Hill, a native of Dallas was associated with the Kansas City Airtemp sales office from 1951 to 1954, as district manager and later as regional manager. Prior to joining Airtemp he was district sales manager for the Advance Furnace Co., Wichita, Kansas.

Servel Appoints Calif. Distributor

EVANSVILLE, Ind. — Appointment of Servair Heating & Cooling Corp., Indianapolis, and W. V. Alton Sheet Metal Co., Marysville, Calif., as distributors of Servel air conditioning products in the Indianapolis and Marysville trading areas was announced recently by the air conditioning division of Servel, Inc.

Officers of Servair Heating & Cooling are C. J. Novak, president; W. M. Dowdell, secretary-treasurer and service manager; and Mrs. C. A. Novak, comptroller.

W. V. Alton is owner of Alton Sheet Metal.

Dairy Group Holds Annual Meeting In New York Mar. 1-2

WASHINGTON, D. C. — The 37th annual meeting of Dairy Industries Supply Association will be held March 1-2, 1956, at the Hotel Commodore in New York City.

The association is comprised of more than 400 firms which supply or equip the dairy processing industries, and a large number of firms are expected to be represented at the meeting.

An annual meeting committee, composed of executives of member firms with offices in the New York area, has already designed a program.

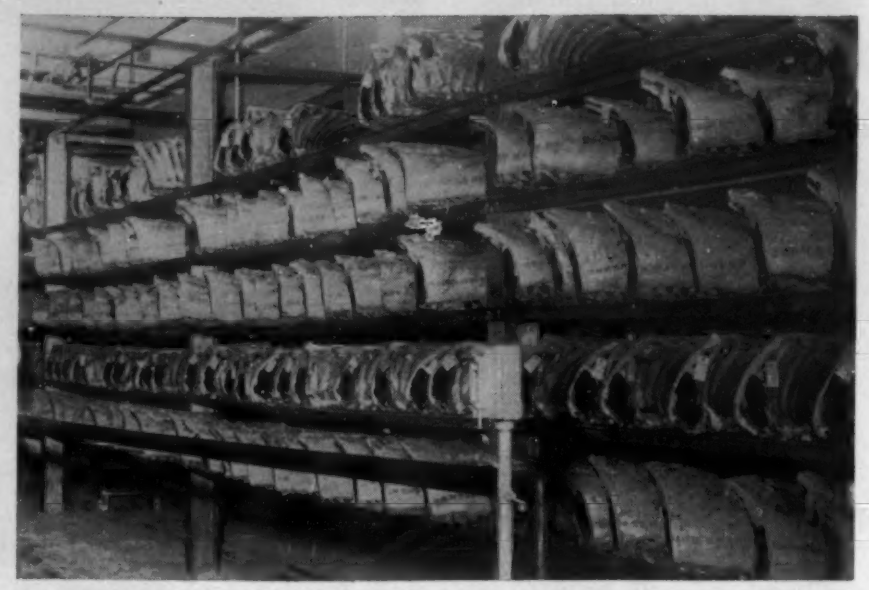
Among the features programmed are the traditional lottery for display locations at the 1956 Dairy Industrial Exposition, two luncheons and an annual banquet, election of six men to DISA's 18-man board of directors for three-year terms, and a review of association policy in regard to staging of Dairy Industries expositions and other matters.

Worthington Net Up Over 1954 Period

NEW YORK CITY—Net income of Worthington Corp. and its domestic subsidiaries for the nine months ended Sept. 30, 1955, after provision of $5,692,381 for Federal income taxes, amounted to $5,476,619, equivalent to $3.97 per share on the 1,310,150 shares of common stock outstanding.

For the corresponding period of last year, net income, after provision for Federal income taxes, amounted to $5,390,608, equivalent to $4.04 per share on the 1,256,025 shares of common stock then outstanding.

Doubling Aging, Sharp Freezer Capacity Doubles Denver Packer's Sales Volume



SHOWN HERE is the Plat Packing Co.'s aging room which accommodates 4,000 ribs and loins. Located on the ground floor of the Denver packing house, the aging room refrigeration is from an ammonia system with automatic defrosting and maximum air circulation.

DENVER—Doubling the capacity of its aging and sharp freezer facilities has doubled sales volume for the Plat Packing Co. here, according to Owners Joseph Lombardi and Dominic Jacovetti.

The eight-year-old firm supplies quality meats to the institutional trade including railroad dining car service and President Eisenhower's summer White House.

The new facilities were added to the left end of the company's building on E. 50th Ave. here. The aging room, which accommodates 4,000 ribs and loins, is on the ground floor and the sharp freezing room, which will hold 15 carloads of beef, is in the basement directly below.

Refrigeration to both facilities is from an ammonia system with automatic defrosting and maximum air circulation.

The aging cooler is located directly off the processing department. It is ceramic tile lined and is filled with galvanized steel racks for shelving.

The sharp freeze room, held at -10° F., is finished in white enamel.

The company's four refrigerated trucks load at interior docks adjacent to the processing rooms.

Lombardi pointed out that Plat allows its customers to select their own ribs and loins from the aging room and then will cut their selections uniformely for good portion control.

He said the company marks all meat put into the aging room with its entering weight and accepts any losses from shrinkage, a policy that has created considerable goodwill and helped build the firm's doubled volume.

Lombardi also commented that Plat urges its customers to buy beef when it is at peak quality and then store it in the company's freezer until needed.

Jordon Names P. T. Sales Factory Representative

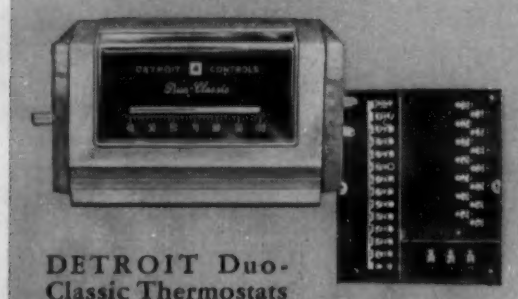
PHILADELPHIA — The P.T. Sales Co. here has been appointed a factory sales representative for Jordon Refrigerator Co. in states along the eastern seaboard, Harry Fogel, executive vice president, announced.

The company will represent Jordon's commercial line in Delaware, Maryland, Virginia, the District of Columbia, southern New Jersey, and eastern Pennsylvania. It will represent the firm's domestic line in Virginia, Delaware, Maryland, and the District of Columbia.

Your Best Full-Line Source For Every Refrigeration Job

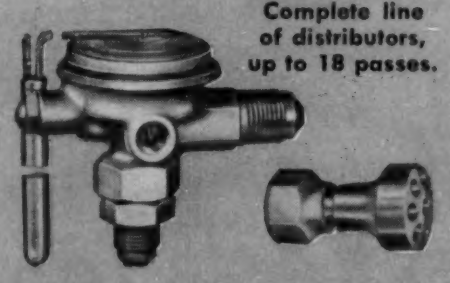
YOU'RE INVITED! Visit Us at Booths 301 and 434 9th Exposition Air-Conditioning and Refrigeration Industry Atlantic City Nov. 28—Dec. 1, 1955

DUO-CLASSIC THERMOSTATS



DETROIT Duo-Classic Thermostats and the Universal (self-powered) Control Panel for Summer-Winter air conditioning. Simplified installation and operation!

EXPANSION VALVES



Complete line of distributors, up to 18 passes.

A broad line of valves with capacities to 25 tons F-12 and 40 tons F-22.

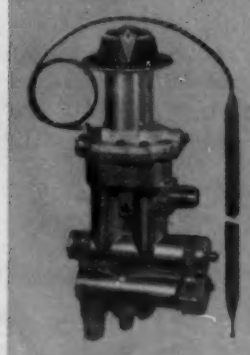
SOLENOID VALVES

A broad line of valves with capacities to 50 tons F-12 and 60 tons F-22.

Special purpose miniature solenoid valves for any application.

DETROIT CONTROLS

DETROIT SELECTAFLOW CONTROL



Thermostatic selector valve for Summer-Winter air conditioning systems using hot and cold water as the heat transfer medium in a single supply and return line. Completely automatic and self contained.

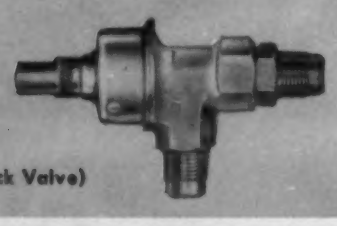
AUTOMATIC CONTROLS

A wide range of automatic controls for pressure, temperature, dual pressure, and sequencing applications.

AUTOMOTIVE AIR CONDITIONING CONTROLS

Combination by-pass and suction valve with operating cam. These valves are engineered to meet high performance requirements.

CRANKCASE PRESSURE REGULATOR



(Hold-back Valve)

Get the COMPLETE Picture . . .
Use the COMPLETE Line . . .

See Your DETROIT CONTROLS Wholesaler
. . . or write for condensed Catalog 200-D

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5900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of AMERICAN - Standard

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AUTOMATIC CONTROLS for REFRIGERATION
AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

AMINCO REFRIGERATION PRODUCTS CO.
1000 E. McNICHOLS RD.
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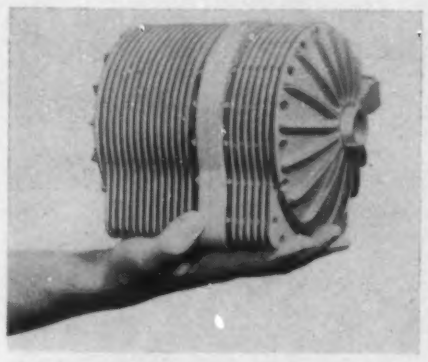
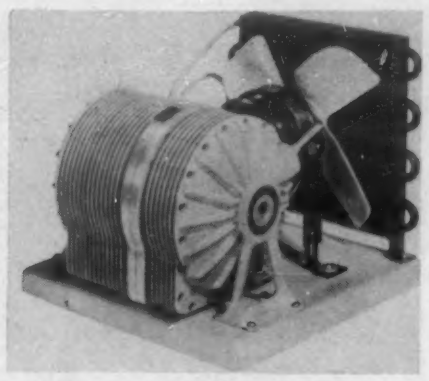
Oil Separators, Suction Throttling Valves, and Flow Control Valves, Mufflers, Etc.
BOOTH #641 At The Show

For more information about products advertised on this page use Information Center, page 54.



HARV-O-METIC's new leightweight compressor, which can be held in one hand will be introduced at the 9th Exposition of the Refrigeration and Air Conditioning Industry.



FEATURING the new compact hermetic compressor is this complete condensing unit by Harv-O-Metic.

New Harv-O-Metic Compressors Claim Lightness, Compactness, Efficiency

LOS ANGELES — Harv-O-Metic Co. here has revealed details on its new "lightweight, compact, and high efficiency" hermetic compressor.

The company said the compressor's "unique space-saving features offer many interesting new possibilities for broadening the field of refrigeration." The unit is making its bow at the 9th Exposition of the Air Conditioning and Refrigeration Industry in Atlantic City.

"A cast aluminum shell whose outside dimensions measure just 8¾ in. by 6⅝ in. provides the housing for each of the ⅛, ⅙, or ¼-hp. models of the 'Harv-O-Metic' compressor," the company stated.

"Even the ¼-hp. motor-compressor assembly, which may easily be held in a man's hand, weighs less than 23 lbs.

" 'Deep-fin' design of the compressor shell furnishes an extra large heat-dissipating surface while internal circulation of the refrigerant vapor assures a low internal operating temperature.

"Endurance and long life have been 'built in' through the employment of a constant-pressure oiling system, oversize bearing surfaces, and precision microfinished internal parts.

"A revolutionary design feature permits the operation of the compressor in either horizontal or vertical position, further increasing its versatility and space-saving advantages.

"An entirely new roller-type compressor design gives the Harv-O-Metic an extremely high volumetric efficiency. Resilient suspension mounts make for quiet operation, and a precisely counterweighted crankshaft practically eliminates vibration.

"The unit is covered by a two-year warranty, and 'out-of-warranty' repairs and replacements are simplified by easy accessibility and complete interchangeability of parts."

The firm will also offer complete Harv-O-Metic condensing units "which capitalize on the compact features of the compressor." These will be available in fan-cooled or static type, for high or low starting torque.

Robert E. Northey, president of the company, said the compressor's features overcome some of the limitations previously imposed on equipment design. "This will be found particularly true in any application where space is limited or at a premium," Northey said. He added that the Harv-O-Metic is especially suitable as a replacement unit.

Production is proceeding on the ⅛, ⅙, and ¼-hp. models and will be followed a little later by the ⅓, ½, and ¾-hp. sizes with slightly larger dimensions and having but very little increase in weight, it was stated.

Refrigeration Growth In Pacific Northwest Seen by John L. Zant

SIDNEY, Ohio — More than 110 independent service contractors and refrigeration dealers heard John L. Zant, Copeland west coast representative, discuss applications and trouble shooting on hermetic motor-compressors in a recent series of west coast meetings.

According to Zant's report from the Pacific Northwest, the number of refrigeration installations is experiencing a steady increase in line with the growing population of that region. He observed that interest on the part of serviceman and installer is at a level higher than ever before.

Sponsored by Thermal Supply Co. of Seattle and Yakima, Wash., over 90 refrigeration men witnessed Zant's demonstration of hermetic field servicing procedures at meetings in the two cities.

In Spokane, Wash., more than 20 firms were represented at the meeting sponsored by Thermo, Inc., Copeland wholesaler there.

Simkin Appointments Designed To Speed Industrial Work

PERTH AMBOY, N. J.— Charles Simkin & Sons, Inc. here has announced the appointment of supervisory personnel for departments newly created to streamline its industrial heating, ventilating, air conditioning, and process piping services.

This move is designed to speed the handling of estimation, bidding, and engineering, and to facilitate job control.

Key positions were delegated to Joseph Dobransky, field superintendent; Alexander Sage, vice president in charge of engineering; Robert Solmor, chief piping engineer; and Edward Greenwald, chief air conditioning engineer.

Dobransky, to whom will be assigned administrative responsibility over all field operations, has been on Simkin's staff for over 37 years.

Sage, who has been on Simkin's engineering staff since 1945, is a member of the American Society of Heating & Ventilating Engineers.

Solmor will be charged with organizing and completing all contracts involving industrial process piping, plumbing, and utility lines.

Chief Air Conditioning Engineer Edward Greenwald had done consultation work.

RECOLD *Vapomatic* uses the heat of compression in a new way to accomplish fast, foolproof defrosting. During the defrost cycle undiminishing heat is applied continuously without the use of external heat sources. This new vapor defrosting method is a suitable companion to the famous RECOLD water defrosting method for below freezing installations.

Vapomatic is easy to install. Just three easy line connections for the inconspicuous "Vapot." Among other things the "Vapot" is an effective heat exchanger which improves the capacity of the compressor and the efficiency of the whole system during the freezing period.

Vapomatic defrosting has been proven in operations at extreme low temperatures. Defrosting, even in sharp freeze rooms, is accomplished in a few minutes. *Vapomatic* works equally well with open or sealed compressors, with air-cooled or water-cooled evaporative condensers. Investigate RECOLD *Vapomatic* Defrosting for your next installation.

See it at booth 201, 9th ARI Show Atlantic City, Nov. 28—Dec. 1

Write for illustrated folder now

WHY "VAPOMATIC" DEFROSTS RAPIDLY
SUPERHEATED "HOT" GAS CONTAINS LITTLE HEAT
WARM VAPOR CONTAINS MUCH HEAT
LARGE VOLUMES OF "VAPOR" READY TO CONDENSE ARE SENT TO THE COIL

More heat to work with. *Diagram shows the relative heat available in hot gas and vapor in the system.*

Proven in extreme low temperatures. *Vapomatic is fast, dependable in sharp freeze room (above) or storage room (inset).*

Recold

RECOLD

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7250 East Slauson Avenue, Los Angeles 22, Calif.

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Dept. L-4
7250 East Slauson Avenue
Los Angeles 22, California

Please send illustrated folder on Recold Vapomatic Defrosting.

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FIRM_____

ADDRESS_____

(or attach to your letterhead)

Self-Contained 'Air-Tomic' Year-Round System Developed for 3,000-Home Project

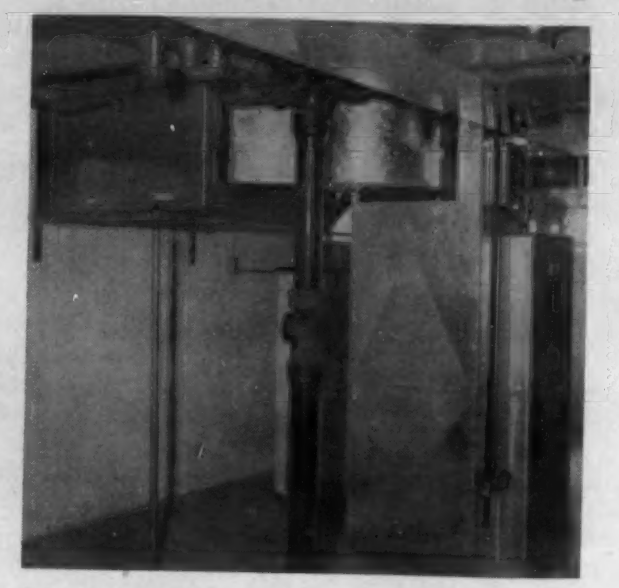
By C. Dale Mericle

ST. LOUIS—More than 3,000 homes slated to be built in the new suburban Hathaway Manor development here will be completely air conditioned, according to the builder, Vorhof-Duenke.

In addition to summer cooling and winter heating, the year-round system incorporates self-charging electrostatic filters, winter humidifier, Westinghouse Sterilamp for air purification, and a Minneapolis-Honeywell Moduflow electronic control system.

This combination of features is called the "Air-Tomic" system by its developers, Harvey-Hill, Inc., a new St. Louis manufacturer.

For summer cooling the system employs a Harvey-Hill "Heat Chaser" residential air conditioner, a newly-introduced unit which combines an air-cooled condenser with a "heat soaker" coil which operates on the principle of an evaporative condenser.



TYPICAL installation of year-round system in Hathaway Manor development in St. Louis incorporates Harvey-Hill air conditioner at left and furnace at right.

CONDENSER air intake and discharge of Harvey-Hill unit are located just below grade in Hathaway Manor installation. Special grille across top of unit discharges air at sharp angle upwards to avoid "short-circuiting."

Claims Combination Cuts Water Usage

This combination of air and evaporative condensing is claimed by the manufacturer to cut water consumption to 9 gals. per day (for a 2-ton unit) with improved efficiency at high ambient temperatures while eliminating the need and cost of a cooling tower.

The unit is self-contained.

It was developed by E. John Hill, president, and F. H. Harvey, Jr., vice president, who organized the new firm in April of this year.

Hill had been director of research and development for Kennard Corp. and previously was manager of research and development for the Trane Co.

Immediately prior to the formation of the firm, Harvey had been associated with a St. Louis parts wholesaler and air conditioning distributor, but for several years previously he had been in personnel and public relations work for Southwestern Bell Telephone Co. and served as a district manager.

Air Conditioner Is Compact

The air conditioner is of compact design. In the 2-ton size it measures 42 in. wide by 44 in. long by 22 in. high. It is intended for mounting against an opening in an outside wall.

Front section of the unit houses a "Freon-22" hermetic compressor, evaporator coil, air intake and filter, and a Lau squirrel cage discharge blower. Return air is pulled in through the filter and coil, over the compressor, and then into the blower to be discharged.

In the larger rear compartment, which is insulated from the front section, are the air-cooled condenser, "soaker" coil, a submersible water pump, drain pan, float valve, and two Lau squirrel cage blowers for condenser air.

Air-cooled condenser is claimed to be full size for the capacity of the unit. It is located at the rear outside air intake of the unit.

"Soaker" coil is directly in front of the air-cooled coil. The two are connected in series so that refrigerant flows first through the "soaker" and then the air-cooled coil.

"Soaker" coil is a 20-ft. length of copper tubing in ser-

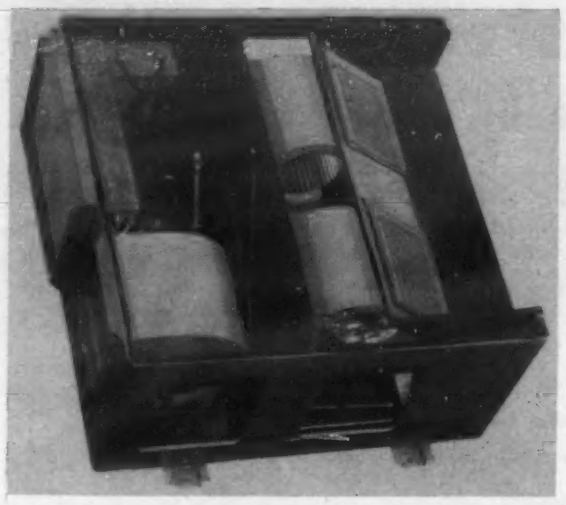
(Concluded on next page)

How to sell

At left: The 25-story Oliver Building at Pittsburgh's Mellon Square has a long list of distinguished tenants. 50% now use the optional air conditioning; 80% are expected to use it by next summer.

Below: Close-up of Philco console unit for year-round heating and cooling. Tenants and management like the system, because individual tenants control their own temperatures.

For more information about products advertised on this page use Information Center, page 54.



COMPRESSOR, evaporator, filter, and air conditioning blower are in front section of Harvey-Hill unit. Two blowers in rear section pull outside air through air-cooled condenser and evaporative cooling "soaker" coil.

'Air-Tomic' Year-Round System--

(Concluded from preceding page)

pentine shape covered with a porous nylon jacket about 2 in. in diameter through which water is circulated by a small hermetic pump.

Some of the water that soaks through the nylon jacket is evaporated in the condenser air stream, thus giving an evaporative cooling effect. Excess water collects in a porcelain pan and is recirculated through the soaker. A make-up water connection to water supply is required.

Present design of the "soaker" may be changed in the future, the company indicates.

At normal ambient temperatures, the manufacturer says, the air coil does about 75% of the condensing work, but at high ambients the "soaker" does approximately 50%.

Operating economies claimed for the unit range from 35% cheaper than straight water cooling, 12% cheaper than a cooling tower, to 4% cheaper than an air-cooled unit—all at ASRE conditions.

More than 2 tons of cooling are produced, however, at 115° F. outside temperature, the manufacturer claims.

Ultimately Harvey-Hill plans to combine all the features of the "Air-Tomic" system being offered at the Hathaway Manor project in a single package.

Plans for national distribution of the "Heat Chaser" air conditioner are being made.

Airtemp Names Hughes To Post

DAYTON—James Hughes has joined Airtemp Div., Chrysler Corp., as supervisor of advertising and sales promotion for residential air conditioning and heating, the company has announced.

J. Hughes

Prior to his new affiliation, Hughes was assistant sales promotion manager for Armstrong Furnace Co., Columbus, Ohio. Earlier he was advertising manager for the Columbus branch of Kroger Co.

Filling a new post created recently with the expansion of Airtemp's Merchandising Section, his headquarters will now be at Dayton.

Gibson Central Home Conditioner Will Be Installed for $695

GREENVILLE, Mich. — A central air conditioning unit said to be capable of cooling the average five-room house and that will sell for approximately $695, installed, has been announced by Gibson Refrigerator Co.

Suitable for installation in any home having warm air heating ducts, the compact new unit requires only 5.2 sq. ft. of installation space, the company stated. The water-cooled air conditioner has a 2-ton capacity.

Earl Palmer, manager of the central air conditioning and heating department, noted that the entire central air conditioning installation is eligible for long-term FHA or open-end mortgage financing.

Gibson's 1956 line of central air conditioning includes 17 models of air and water-cooled units for commercial or residential use, ranging in capacity from 2 to 8 tons.

At the same time, Gibson is introducing 2-hp. window air conditioners and a new ¾-hp. window unit that plugs into a standard 110-volt circuit.

Obrig Appointed Unarco Regional Sales Manager

CHICAGO — John T. Obrig has been named eastern regional sales manager of Union Asbestos & Rubber Co.'s Heating & Cooling Div., it was announced by Peter B. Colwin, assistant general sales manager of the division.

J. T. Obrig

Since 1954 he has been district manager of Typhoon Air Conditioning Co.

Obrig will supervise sales of Unarco's heating and air conditioning equipment, along with the eastern seaboard, and as far west as Pennslyvania and West Virginia, and will maintain headquarters in Unarco's New York City offices in the Graybar building.

He began his business career with Babcock & Wilcox Co. of New York as a design engineer. During World War II he served as technical officer attached to the Supervisor of Ship Building, U. S. Navy, Los Angeles.

Following the war, Obrig was engaged in air conditioning design work for the Brookhaven National Laboratory and subsequently joined Trane Co. as a sales representative. Later, he joined Typhoon.

IronFiremanNamesBibb

CLEVELAND — Reappointment of Stewart H. Kibbe as sales training director of Iron Fireman Mfg. Co. has been announced by Wayne F. Strong, president.

Kibbe had served as sales training director during 1951-52, when he was recalled to the Army Signal Corps.

existing buildings on package units

Console room conditioners solve year-round heating and cooling problems at Henry W. Oliver Building, Pittsburgh, Pennsylvania

Expense and inconvenience make installation of central air conditioning a major problem in an existing building. To solve this problem, the management of a Pittsburgh office building devised an ingenious system using package units. Maybe their solution can help you sell similar prospects.

Steam coils mounted in Philco ¾- and 1-ton units provide year-round heating and cooling for tenants of the Oliver Building. Cost, including wiring, was 50% less than a central system.

Consoles adapted for heating at low cost

The system worked out by the building's engineers consists of a steam coil mounted in the plenum chamber of ¾- and 1-ton Philco room air conditioner consolettes. Total initial cost of installation was 50% less than the lowest bid for a central system. No major construction was required. The units fit into the mahogany decoration scheme and completely eliminate cast-iron radiators. System is optional to the tenants, and units can be moved at will to fit continually changing floor plans.

Above: A ¾-ton installation in a small office. Units are easily moved for changes in floor plan. They fit attractively into the mahogany décor, eliminating cast-iron radiators.

"Freon"* refrigerants best for air conditioning

The efficiency and compact size of the Philco units is due in part to the charge of "Freon-22" refrigerant in the cooling system. "Freon" is ideal for air conditioning, because it is the safe refrigerant—nonflammable, nonexplosive, and virtually nontoxic. For nearly 25 years Du Pont has been manufacturing "Freon" to strict laboratory standards. The result is a product of uniform purity which contributes to long, efficient service for all types of refrigerating and air conditioning equipment. On your next refrigeration or air conditioning job be sure to specify a system charged with "Freon" refrigerant made by Du Pont—the name you can depend on.

For further information on "Freon" refrigerants write to E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division 111, 2420-13 Nemours Building, Wilmington 98, Delaware.

KINETIC

FREON

SAFE REFRIGERANTS

*"Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon refrigerants

DU PONT

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

WANTED
SALES REPRESENTATIVE

Good territories will be available January 1st, 1956 for qualified SALESMEN with successful sales records, to contact and sell to the following:

- COMMERCIAL REFRIGERATION DEALERS
- FREEZER-FOOD PLAN OPERATORS
- DAIRY EQUIPMENT INDUSTRY
- HOTEL & RESTAURANT SUPPLY FIRMS

For interview, see the undersigned at Booths 615-616-617-618 at the 9th Exposition of the Air Conditioning & Refrigeration Industry, November 28 to December 1st, 1955, at Atlantic City, New Jersey, OR WRITE direct to our factory.

FRED J. PAYSON *Sales Manager*
STUART RABB *Director of Dairy Sales*

UNITED REFRIGERATOR CO.
HUDSON, WISCONSIN

It's *NOT* a Two-Man Job
to deliver and install a Window Air Conditioner or remove it for service, if you own a

ONE-MAN STAIRWALKING
HYKER
with Lifter Shelf

Face it now: if 1956 is a big season, you won't have manpower to tie up two men on every installation and service call.

Write
HYKER
916 W. Lycoming
Phila. 40, Pa.

Architect To Cool New Headquarters

PHILADELPHIA — Plans to erect a home office building two blocks from Penn Center were recently announced by the Ballinger Co., architects and engineers.

The 2-story building at 1623-7 Race St. will be completely air conditioned. Lighting throughout will be fluorescent in acoustic tile ceilings.

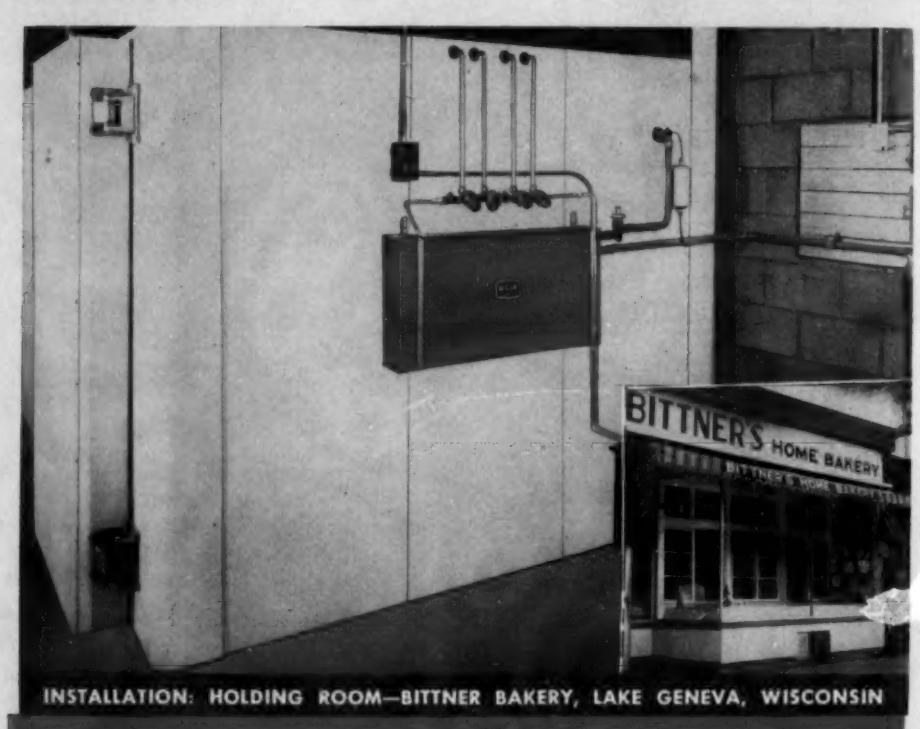
The Ballinger Co. employs 125 architects, engineers, and their assistants, including structural, civil, electrical, plumbing, heating, ventilating, sanitary, air conditioning, and fire protection specialists. Permanent staff consultants on hospitals and schools are retained.

Ballinger-Meserole Co., physical distribution consultant, will share office space in the new building which is expected to be completed by April 1, next year, it was disclosed.

Zant Opens Offices In Pasadena, Cal.

SIDNEY, Ohio—John L. Zant, West Coast representative for Copeland Refrigeration Corp., has opened a new office in Pasadena, Calif., it was announced here. The office is located at 557 E. Walnut St., Pasadena.

ELECTRIC **Heat-Cel*** **AUTOMATIC DEFROST**



INSTALLATION: HOLDING ROOM—BITTNER BAKERY, LAKE GENEVA, WISCONSIN

THE LATEST DEVELOPMENT IN LOW TEMPERATURE REFRIGERATION

- Heat for re-evaporation supplied by low wattage, long life electric heater.
- Positive, consistent, economical.
- Performs efficiently in any ambient, regardless of location or season.
- Independent of compressor operating time or type (air or water cooled).
- No special controls needed for winter-time operation.
- Patented DOLE VACUUM principle insures faster heat transfer for quicker defrosting. Convenient "plate" design allows flat-against-wall mounting.

Defrosting "Kit" includes Heat-Cel and Accessory Package containing all necessary controls

DOLE REFRIGERATING COMPANY
5920 N. PULASKI ROAD, CHICAGO 30, ILL. • 103 PARK AVENUE, NEW YORK 17, N. Y.
In Canada: Dole Refrigerating Products Limited, 44 Elgin Street, Brantford, Ontario

Write for Engineering Catalog DE.

Maximum Refrigeration Efficiency DOLE MANUFACTURERS OF THE Cel LINE

"HEART OF THE SYSTEM"

* Approved by Underwriters Laboratories

Master Program Lists Events of Show Week

In the following master program, the scheduled events of six industry associations are listed. The initials of these associations and the hotels where they will conduct their activities are:

ARI	Air-Conditioning and Refrigeration Institute	Chalfonte-Haddon Hall
ARW	Air Conditioning and Refrigeration Wholesalers	Claridge
ASRE	American Society of Refrigerating Engineers	Traymore
NCRSA	National Commercial Refrigerator Sales Association	Traymore
RACCA	Refrigeration and Air Conditioning Contractors Association	Ambassador
RSES	Refrigeration Service Engineers Society	Ambassador

Saturday, Nov. 26

8:30 a.m. to 9 p.m.—RACCA registration and distribution of tickets. Mezzanine lounge.
9 a.m.—ARW board of directors meeting.
9 a.m.—RSES registration. 22 Club Rotunda.
9:30 a.m.—RACCA committee meetings. Suite No. 615-16-17.
10 a.m.—ARW registration. Promenade section of mezzanine.
12:30 p.m.—ARW board of directors luncheon. Mayfair dining room.
12:30 p.m.—RACCA board of directors meeting. Room 120. Business meeting.
1 p.m.—RSES opening business session. 22 Club room.
1 p.m.—Golf for ARI board.
2 p.m.—ARW board of directors meeting continued.
4 to 5 p.m.—RSES educational program. 22 Club room.
6 p.m.—ARW get-together. Park lounge.
7 p.m.—ARI board of directors dinner.
8 p.m.—ARW past presidents' dinner. East Room.
All Day—RACCA hospitality room get-together. Room 122.

Sunday, Nov. 27

8 a.m.—RSES registration. 22 Club Rotunda.
9 a.m.—Exposition Registration, Convention Hall.
9 a.m.—RSES educational session. 22 Club room.
9 a.m.—RACCA registration. Main lobby.
9:30 a.m.—RACCA business meeting. Room 125.
10 a.m.—ARW registration. Promenade section of mezzanine.
10 a.m. to 4 p.m.—RACCA board meeting. Room 120.
10 a.m.—ARI board of directors meeting.
12 Noon—ARW luncheon for manufacturers and invited guests. Trimble Hall.
12:30 p.m.—NCRSA board of directors luncheon meeting. Mandarin room.
1 p.m.—RSES educational session.
1 p.m.—RACCA general meeting. Room. 125.
2 to 8 p.m.—NCRSA registration. Lobby.
2 p.m.—ARW business meeting. Trimble Hall.
3 p.m.—ARW "What Would You Do?" committee meetings.
5 p.m.—RACCA all-industry get-together reception and cocktail party. Embassy room.
6:30 p.m.—RACCA all-industry dinner. Embassy room.
6:30 p.m.—ARW officers reception. Park lounge.
7:30 p.m.—Family get-together. Surf room.
7:30 p.m.—ARW anniversary banquet. Trimble Hall.

Monday, Nov. 28

8 a.m.—ARW registration. Promenade section of mezzanine.
8:30 a.m.—RACCA registration and distribution of tickets. Mezzanine lounge.
8:45 a.m.—NCRSA registration. Lobby.
9 a.m.—Exposition Registration, Convention Hall.
9 a.m.—RSES business meeting (closed). Club 22 room.
9 a.m.—ARW symposiums. Trimble Hall, Board room, East room, West room.
9:30 a.m.—NCRSA general meeting. Rose room.
10 a.m.—RACCA business meeting. Room 125.
10 a.m.—ARW business meeting. Trimble Hall.
12 Noon to 3:30 p.m.—RACCA annual luncheon meeting. Embassy room.
12 Noon—RSES luncheon and meeting of Manufacturers Service Managers Club.
12:30 p.m.—NCRSA luncheon. American room.
2 p.m.—NCRSA general meeting. Rose room.
2 to 10 p.m.—Exposition of the Industry open. Auditorium.
5 p.m.—RACCA hospitality room. Room 122.
6 p.m.—NCRSA reception. American room.
7 p.m.—NCRSA annual dinner. American room.
7:30 p.m.—RSES banquet and entertainment. Renaissance-Venetian room.

Tuesday, Nov. 29

9 a.m.—RSES educational session. Club 22 room.
9:30 a.m.—NCRSA general meeting. Rose room.
9:30 a.m.—ARI credit committee meeting.
10 a.m.—RACCA business meeting. Room 125.
10 a.m. to 6 p.m.—Exposition of the Industry open. Auditorium.
12:30 p.m.—NCRSA luncheon. Rose room.
1 p.m.—RSES board meeting. Room 105.
2 p.m.—NCRSA general meeting. Rose room.
6 p.m.—ARI cocktail party for invited guests.
6 p.m.—RACCA hospitality room. Room 122.

(Concluded on next page)

For more information about products advertised on this page use Information Center, page 54.

Master Program of Events

Wednesday, Nov. 30

10 a.m. to 6 p.m.—Exposition of the Industry open. Auditorium
8:30 p.m.—9th Exposition Follies. Warner theater.

Thursday, Dec. 1

9 a.m.—ASRE general assembly.
9:30 a.m.—ASRE technical session.
10 a.m. to 4 p.m.—Exposition of the Industry open. Auditorium.
11:40 a.m.—ASRE technical session.
1 p.m.—ASRE welcome luncheon.
2:30 p.m.—ASRE forums.
4 p.m.—ASRE forums.
Evening—ASRE skating party.

Friday, Dec. 2

9 a.m.—ASRE technical session. Domestic Refrigerator Conference.
9:30 a.m.—ARI self-contained ice maker section meeting.
10 a.m.—ASRE technical session.
11:10 a.m.—ASRE technical session.
1:30 to 4 p.m.—ASRE technical session. Conference on new fields for mechanical cooling.
Evening—ASRE cocktail party and dinner dance.

Saturday, Dec. 3

Morning—ASRE technical session. Air conditioner conference.

Refrigerated Fixture Ups Store Egg Sales

BUFFALO — Egg sales at Bells Market in suburban East Aurora showed a sharp increase during a four-week test of a specially-built refrigerated egg case designed by marketing experts at Cornell university.

The case is designed not only to increase egg sales but to improve quality of the eggs.

Prior to installation of the egg case in Bells Market, eggs were kept in a refrigerated display case containing many other food items, and egg sales had averaged 250 dozens a week.

At the end of the first week with use of the special egg case, sales jumped to 311 dozens; by the end of the second week, 373 dozens; the third week, 448 dozens, and the fourth week, 545 dozens.

FIRST LARGE INSTALLATION of the B. F. Goodrich Co.'s newly-developed "Spongex Molded Cell-Tite Tubing," designed to inhibit condensation and provide insulation for copper tubing used in air conditioning and refrigeration work, sees 11,000 ft. used for copper tubing in a new Chicago apartment building air conditioning installation. Workmen slip on the unicellular rubber material from 50-ft. rolls and cut to desired length with ordinary scissors.

Kansas City Supplier Appoints Sales Staff, Plans More Space

KANSAS CITY, Mo.—Refrigeration Equipment Co. here, refrigeration and air conditioning equipment and supplies wholesaler, has announced the appointments of Roy B. McCrady as sales manager, Warren S. Clark as assistant sales manager and application engineer, and W. L. (Mickey) Goetz to industrial sales.

In addition, the company announced that Jerome Black, who has been associated with the firm for five years as comptroller, has now assumed the additional duties of office manager.

A member of the RSES and ASRE, McCrady was formerly associated with Ansul Chemical Co. as district manager in Kansas City; Texas Refrigeration Supply Co., Fort Worth, as sales manager; and Alco Valve Co. in Fort Worth.

Clark, who is vice chairman of the Kansas City Chapter of the ASRE, has been associated with Betz Engineering, Baker distributor, Kansas City, and Kansas City School of Refrigeration, in charge of theory and practical engineering, refrigeration and air conditioning.

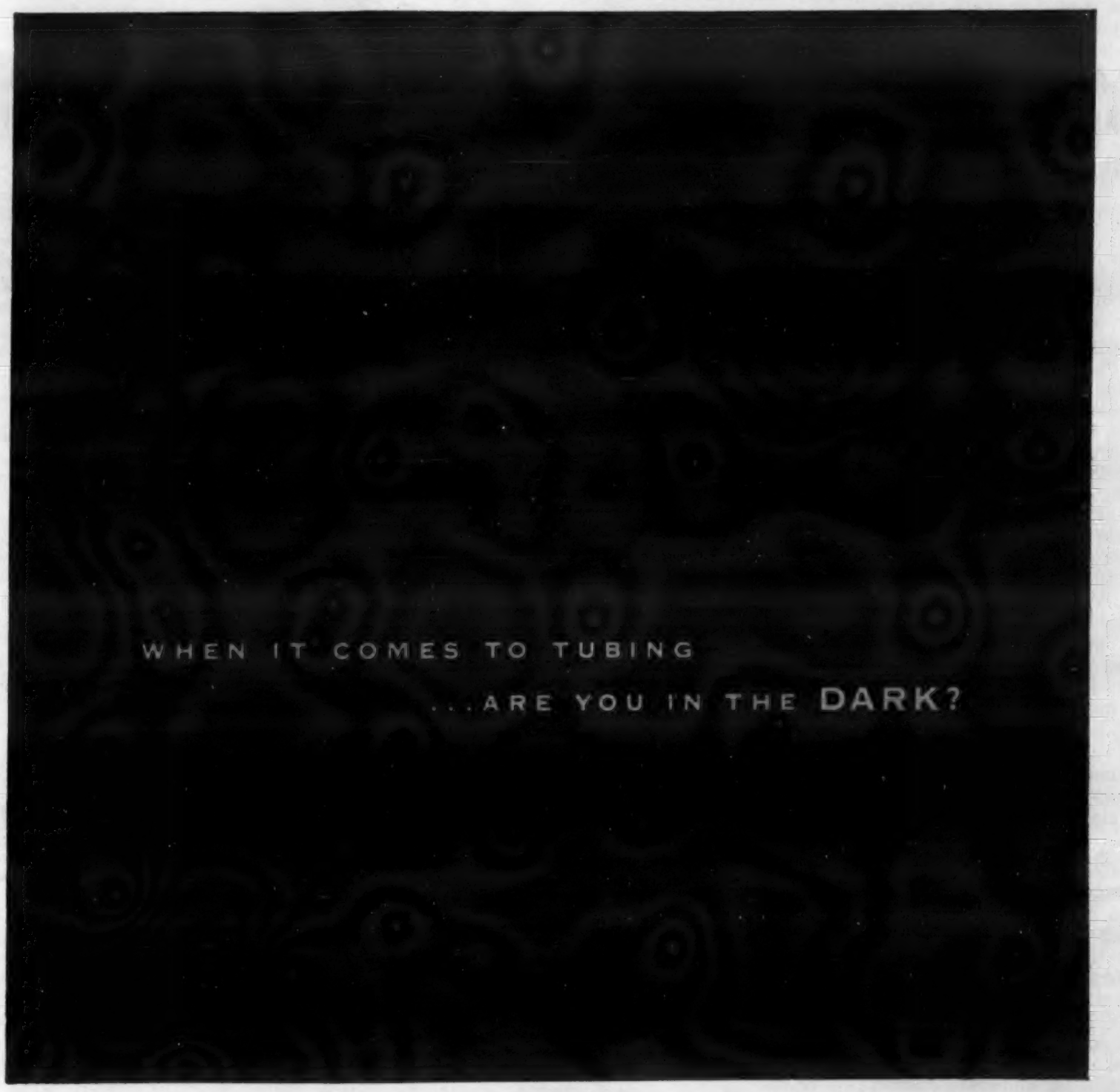
Goetz was formerly with Leonard D. Gray Co., Kansas City; D. T. Williams Valve Co., Cincinnati; and Bradford Machine Tool Co., New York, as eastern sales manager. He is an RSES member.

E. L. Tramposh, president, said Refrigeration Equipment plans to make further internal appointments in various departments in the near future.

Tramposh also reported that the firm has purchased property adjoining its warehouse and plans to add additional warehouse space. This will give the company 15,650 sq. ft. of warehouse space and parking lot.

Air Engineering, Inc. Moves To S. Pineapple Ave.

SARASOTA, Fla.—Air Engineering, Inc. has announced it is now located at 242 S. Pineapple Ave. here. The firm sells and services air conditioning and ventilation equipment and heat pumps for residential, commercial, and industrial applications.



When you're in the dark about tubing and want information, data, or knowledge, ask the man who knows—your best authority is Penn.

For over a third of a century Penn has been drawing a better tube, as well as solving tubing problems for all industry. Penn quality goes further because there is more usable tubing per pound—less rejections and a minimum of waste. You'll like the way the Penn Engineers and Sales Representatives approach, treat, and solve your tubing requirements. Ask for the Penn story "How much more Quality weighs."

COPPER TUBE COILED • STRAIGHT • CAPILLARY
FABRICATED • FLARED • FITTED

PENN BRASS & COPPER COMPANY
ERIE • PENNSYLVANIA • TELEPHONE 3-1164

Lonergan Offers New Room Units In Coolerator Line

ALBION, Mich. — Lonergan Mfg. Div. of McGraw Electric Co. has announced a new Coolerator line of room air conditioners.

The units range in size from ¾ through 2 hp. The line includes such features as flush mounting, high velocity air, and anti-sweat control, the company said.

Lonergan has manufactured all of Admiral Corp.'s air conditioners for the past three years, it was noted.

Lewyt Adds Convector to Wall Air Conditioners In Custom-Built Service

BROOKLYN—A custom built service for its line of built-in wall air conditioners has been started by Lewyt Air Conditioner Corp., according to Irving Bottner, vice president.

The new service is aimed to eliminate common problems encountered by builders on new constructions, Bottner said. One common problem, Bottner declared, is to have heating and cooling equipment look like one unit inside a room. He said Lewyt is using its flexibility to solve the problem by making the front cover of its unit in combination with a convector.

Builders have requested other variations, according to the Lewyt executive. Some variations include shells with flanges placed at different measurements to assure built-in appearances; shells made larger in depth; shell covers made of aluminum instead of steel; and line cords switched from the right side to the left side of units.

Emerson Radio & Phonograph Div. Names Brigance

NEW YORK CITY—Emerson Radio and Phonograph Corp. has appointed J. Carl Brigance midwest district trict manager of its Air Conditioning Div., it was announced recently by Michael Kory, vice president in charge of sales.

J. C. Brigance

Brigance will maintain his headquarters in Omaha, Neb. and will work in close conjunction with Emerson distributors and their salesmen in his territory.

Immediately prior to joining Emerson, Brigance was regional manager of Remington Corp., manufacturer of air conditioners. He previously served in similar capacities with Servel, and Fedders-Quigan Corp.

Carrier Increases Dividend; To Expand Distribution, Production In Southwest

HOUSTON, Texas—The quarterly dividend rate on the common stock of Carrier Corp. was increased to 60 cents per share by action of the board of directors in a meeting held here recently. The former rate was 50 cents per share.

The dividend declared on the common stock will be payable on December 15, 1955, to holders of record at the close of business on Nov. 15, 1955.

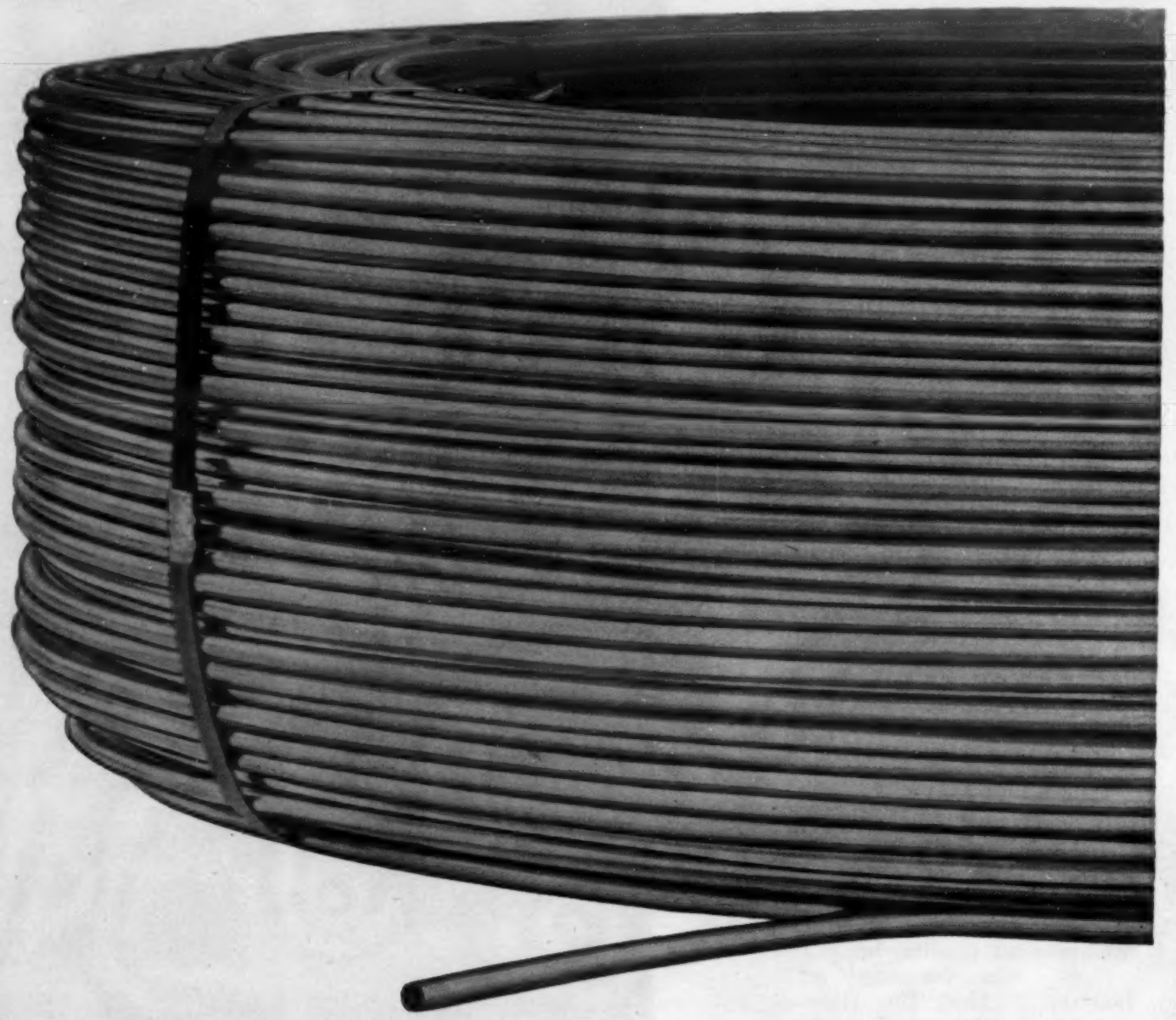
The board of directors also authorized the regular dividend payment on the preferred stock of the corporation.

The meeting of the Carrier board that took place here was the first ever held in the southwest. After the formal meeting, the directors inspected the new quarters of Carrier-Houston Corp., a wholly-owned subsidiary engaged in the distribution of air conditioning equipment through dealers in the metropolitan Houston trading area.

Cloud Wampler, chairman and president, and other executives of the corporation came to Houston after inspecting Carrier's recently-acquired facilities in Tyler, Texas and conferring with the district managers who are headquartered in Dallas.

While in Tyler, Wampler announced that the plant there would be completely air conditioned. Also, he reported the letting of a contract for the construction of a new office building in Dallas which will provide facilities for use by the Unitary Equipment and Machinery and Systems divisions of the corporation.

MERGING of two major Chicago air conditioning and appliance manufacturing firms was revealed at a press conference two weeks ago when J. W. Alsdorf, president of Cory Corp., announced his publicly-owned company purchased all capital stock of Mitchell Mfg. Co., headed by B. A. Mitchell. Four of the principals in this merger are shown above. From left to right are A. N. Pritzker, board chairman of Cory, who will occupy the same position with the firm's new Mitchell subsidiary; B. A. Mitchell, retiring president of Mitchell who will remain with Cory in an advisory capacity; J. W. Alsdorf, president of Cory, and E. A. Tracey, Michell general manager who will retain the same position under Cory. Effective date of the acquisition was Nov. 9. It was emphasized that Mitchell will operate as an independent division of Cory, competing with the Fresh'nd-Aire Div., and will function as a wholly-owned subsidiary.



Want 4000-ft. coils of dependable tubing?

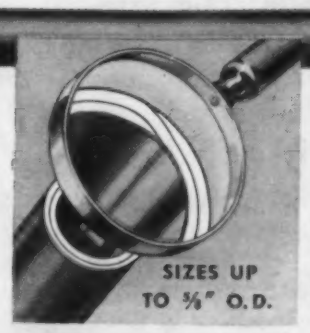
WHY BUNDYWELD IS BETTER TUBING

Bundyweld starts as a single strip of copper-coated steel. Then it's . . .

continuously rolled twice around laterally into a tube of uniform thickness,

and passed through a furnace. Copper coating fuses with steel. Result . . .

Bundyweld, double-walled and brazed through 360° of wall contact.



← NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead and less chance for any leakage.

Bundy Tubing Distributors and Representatives: *Cambridge 42, Mass.:* Austin-Hastings Co., Inc., 226 Binney St. • *Chattanooga 2, Tenn.:* Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg. • *Chicago 32, Ill.:* Lapham-Hickey Co., 3333 W. 47th Place • *Elizabeth, New Jersey:* A. B. Murray Co., Inc., Post Office Box 476 • *Los Angeles 58, Calif.:* Tubesales, 5400 Alcoa Ave. • *Philadelphia 3, Penn.:* Rutan & Co., 1717 Sansom St. • *San Francisco 10, Calif.:* Pacific Metals Co., Ltd., 3100 19th St. • *Seattle 4, Wash.:* Eagle Metals Co., 4755 First Ave., South *Toronto 5, Ontario, Canada:* Alloy Metal Sales, Ltd., 181 Fleet St., E. • **Bundyweld nickel and Monel tubing are sold by distributors of nickel and nickel alloys in principal cities.**

For more information about products advertised on this page use Information Center, page 54.

New York Firm Set Up To Help Start Food Plan

NEW YORK CITY — For those wanting to start a freezer food plan or who need assistance in operating their present plan, a new service is available from the George Alpert Co., manufacturer's representative here, the firm announced.

This service in consulting with department stores, frozen food lockers, supermarkets, appliance stores, and others consists of planning the entire organization. Financing, hiring, and training sales management and salesmen, sales operations and procedures, and directions for efficient operation are included, the company said.

The Alpert Co. reported that it stays with any consulting operation of freezer food plans for the first crucial six months. A complete text, Procedures and Sales Operations, is the guidebook used.

George Alpert has been associated in this type of merchandising with Orley Freezers as a representative and as sales manager of the freezer manufacturing division of King Refrigerator Corp.

Robert Stewart Heads Wesco Home Sales

NEW YORK CITY—Appointment of Robert W. Stewart as general manager, consumer products, for Westinghouse Electric Supply Co. was announced here by Victor D. Kniss, president.

At the same time, Kniss announced the appointment of Louis G. Berger as assistant to the president. Clyde S. Gischel, formerly general manager, consumer products, has been appointed to the president's staff.

Dealer Development Men Named by Amana

AMANA, Iowa—As a further step in the expansion of its dealer development program, Amana, Refrigeration, Inc., has appointed dealer development managers for its Buffalo and eastern regions, J. A. Rishel, Jr., general sales manager, announced recently.

Named as dealer development manager in the eastern region was Ronald L. Withers of Alexandria, Va., until recently a representative of Amana of Washington, Inc.

Matthew L. Ryan, of Toledo, who was with an appliance distributor in that city, was appointed dealer development manager for the Buffalo region.

Withers, who is a native of Washington, D. C., was associated with the Metropolitan Food Plan of Washington.

How Far Do You Go?

For a Freezer-Food Plan Delinquent, New Collection Methods Are Involved

CINCINNATI — To avoid or check a possible repossession of a home freezer, the dealer must sometimes go to extremes with the food plan member, Arnold W. Iams of the Dayton Economy Food Co. told freezer-food plan operators here recently.

Participating in a panel discussion on food plans at the annual convention of the National Frozen Food Locker Institute here recently, Iams described his company's method of financing freezer-food sales.

To avoid repossessions, he said, "you must be very firm and severe the very first time you, personnally, call on him.

"Let him know just what will happen to him if he lets the freezer go back. Tell him that first he will be creating a repossession. Second, he will ruin his credit. Third, he'll be blacklisted at the credit bureau.

"Tell him that when the finance company repossesses, it advertises and sells the box at auction for a small portion of what he owes on it. This is applied against what he owes and a deficiency judgment is taken on the balance.

Using 'Hard Talk'

"If he does not pay this balance, he will be sued and levied against. Or if he is suit-proof (has nothing), he will be garnisheed.

"In 99 out of 100 cases," Iams concluded, "your member will say, 'Let's forget about the whole thing. I'll keep my payments up-to-date from now on.'

"It's a lot of hard work, fellows, but it pays off."

Iams explained that Dayton discounts its freezer paper through a finance company without recourse or reserve and finances the food through the processing company. The latter has a finance company which buys all its paper.

Food Financing Apart

"We find that by separating our food financing from our freezer financing it is easier to keep the deal in hand and avoid collection problems on the freezer," Iams declared.

"The two being handled by different finance companies seems to make it easier on the food plan member because we separate payment dates, keeping them two weeks apart. We find results good.

"When both the food and the freezer were financed together, we ran into a great deal of delinquency because of high monthly payment."

Food Purveyor's Role

Iams added, "the fact that our food purveyor has his own finance setup and is willing to handle any paper we turn over to him relieves us of a great responsibility. He sells the paper to the finance company with full recourse. He takes it from us without recourse. It is a very nice setup."

Commenting on the freezer financing, Iams commented, "We find that you must work very closely with your financing source to keep your deals clean all the way. Help them in their efforts to collect and you help them stay away from repossessions. This will do much to keep you on good terms with your finance source, even though you are not recoursing your deals."

Admiral Appoints B. L. Stahlschmidt

CHICAGO — Bodie L. Stahlschmidt has been named regional manager for Admiral Corp.'s mid-south sales territory with headquarters in Memphis, according to Harold D. Conklin, general sales manager.

Long coils are an old story at Bundy.

For years, we've been making them for customers who specified them. So, despite statements that there's something unique about the production of long coils, there really isn't.

If you want long coils of dependable tubing, just come to headquarters for small-diameter tubing, where you can get quick, quantity delivery on Bundyweld steel tubing, in coils up to 4000'—in sizes from capillary to and including ⅜" O.D. On occasion, we've even filled orders for 13,000'-coils of Bundyweld in capillary sizes.

Bundyweld means far more than long-length coils, however. In it, you get the refrigeration industry's most reliable tubing. *Inherently* reliable because it's the only tubing double-walled from a single strip of copper-clad steel. *Inherently* reliable because of its solid copper bond throughout 360° of double-wall contact. *Inherently* leakproof tubing—proved in refrigerators and freezers for over 20 years. It's tubing that comes to you meticulously made and inspected, carefully packaged, refrigeration-clean inside and out. And it comes on schedule.

Need fabrication help?

If you need fabrication help, you'll get it from engineers who thrive on solving tubing problems. If the problem proves unsolvable, our engineers can often suggest some slight design modification that will result in economical production and unimpaired function. They're resourceful men, as you'll see.

Of course, if you'd like us to take on your fabrication of small- or giant-parts runs, we stand alerted at all times to give you fast delivery of parts, accurately produced, checked, ready in every way for assembly.

Call, write, or wire for any information you'd like. ***Bundy Tubing Company, Detroit 14, Michigan.***

Bundyweld®Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

UL Ups Air Conditioning, Refrigeration Heat-Loading Test Facilities by 400%

CHICAGO—New "hot rooms" and other facilities at Underwriters' Laboratories, Inc. here represent a 400% increase in capacity for heat-loading tests on air conditioners and other refrigeration equipment.

They were so described by W. A. Farquhar of the UL staff at the AIEE conference on application of motors to space heating and cooling equipment held in St. Louis recently.

"In addition to 'hot rooms' we have increased our facilities for conducting locked-rotor tests on refrigeration motors, obtained new equipment for making hydrostatic strength tests, and constructed rain test equipment," Farquhar said.

"About two years ago," he explained, "it became apparent that the test facilities at Underwriters' were becoming inadequate to permit reasonably prompt testing of the refrigeration equipment and air conditioners which were being submitted for listing. The main reason was the tremendous upswing in the submittals of room air conditioners and residential air conditioners of the central type."

The three new hot rooms are arranged along one wall of the UL laboratory, taking a space of about 43 by 13 ft. The two end rooms are 12 ft. square on the inside and the center room is 12 by 18 ft. in size. Ceilings are 9 ft. high, and doors measure 4 by 8 ft. to permit testing of large equipment.

"The common walls between adjacent rooms are each pierced with two openings," Farquhar said. "The openings in one of the walls are 3 ft. wide by 2½ ft. high, and those in other are 3 ft. wide by 5 ft. high.

"These openings are provided to permit dual ambient testing and to permit combining the capacities of adjacent rooms when necessary to test equipment which presents a load too large for one room. Removable insulated plugs are provided to isolate the rooms from each other.

"The rooms are constructed on a 3-in. thick slab of concrete insulated from the 5-in. floor slab by 1in. of compressed cork and reflective foil. The floor surface is troweled and surface-hardened," Farquhar declared.

Panel Sections Permit Removal

"To permit subsequent removal of these facilities to our Northbrook, Ill. location, the walls are made in panel sections with a nominal 4-in. thickness of Fiberglas thermal insulation. The exterior surface is electrogalvanized and painted steel cemented to marine plywood. The interior is of stainless steel semented to marine plywood.

"Joints between adjacent panels are rabbeted and secured by screws. The panels are placed between parallel angles secured to the floor by powder-driven studs. A vapor seal is provided in all joints," Farquhar explained.

"The ceiling sections are constructed and assembled in the same manner as the wall section. The entry of all electrical conduit and water piping is through removable plugs in the ceilings.

"The end test rooms are provided with four and the center test room with six 100-watt surface mounted vaportight fluorescent fixtures.

"Each test room is provided with an individual motor-operated damper exhausting into a common duct and then through a blower to a roof-mounted vent to permit exhausting the room in the event of a refrigerant leak or equipment fire.

Air Conditioning Equipment Provided

"The various UL standards for air conditioners and refrigeration equipment require test conditions of 104° F. dry bulb, 80° F. wet bulb; and 80° F. dry bulb, 67° F. wet bulb. Conditioning equipment is provided to maintain these conditions within limits of plus or minus 1° F.

"In addition, the conditioning equipment is designed to maintain 115° F. dry bulb, 80° F. wet bulb specified by the Air-Conditioning and Refrigeration Institute for their maximum operating test and the 95° F. dry bulb, 75° F. wet bulb air to condenser and 80° F. dry bulb, 67° F. wet bulb air to evaporator specified as rating conditions by the American Society of Refrigerating Engineers.

Tolerances for these latter conditions are also plus or minus 1° F.

Conditions Individually Set

"All conditions in each room are capable of individual setting and are automatically maintained and recorded," Farquhar said.

The refrigeration equipment was installed by Refrigeration Systems, Inc., Chicago contractor.

"To condition the air in the rooms, a separate air-handling system with its associated heating, cooling, dehumidifying, and humidifying equipment is provided for each room. Electric heaters rated 12 kilowatts and a 3-ton direct expansion evaporator coil are installed in each of the duct systems for the two end rooms.

"Electric heaters rated 24 kilowatts and a 5-ton direct expansion evaporator coil are installed in the duct system for the center room. Steam jets in the inlet air duct of each room provide humidification.

"A separate direct expansion low-temperature coil is provided in each duct system for use when dehumidification is necessary. Two recorder-controllers are used for each room. One of these controls and records dry-bulb conditions while the other does the same for wet-bulb conditions," said Farquhar.

"A three-section console, consisting of a center section and two wings, provides a centralized control, power supply, and data-taking station, is located along one end of the three-room block. The three dry bulb and three wet-bulb recorder-controllers for the rooms are located in the left wing of the console.

"The individual 120-240-volt, single-phase, three-wire; 120-208-volt, three-phase, four-wire; and 240-volt, three-phase, three-wire circuits for supplying equipment under test are

(Concluded on next page)

Where can we help YOU build a better product . . . with VERSATILE H&H TUBE

No matter what air conditioning, refrigerating or heating equipment you manufacture—whether you produce only the parts for assembly into a completed unit by someone else, or if you handle the manufacture of an end product from beginning to finish—H & H has the *right* tubing and the *right* parts fabricating facilities for you. Try us and see.

* * *

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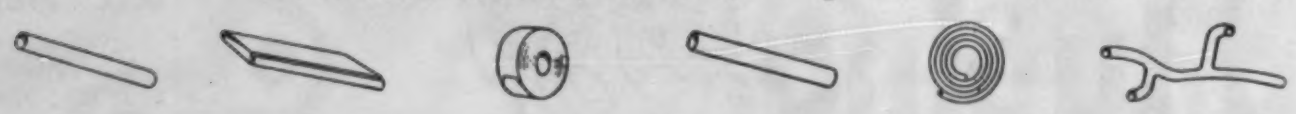

METALFLO LOCKSEAM COIL STRIP AND SEAMLESS TUBING TUBULAR PARTS

For more information about products advertised on this page use Information Center, page 54.

UL Adds Test Facilities--

(Concluded from preceding page)

brought into the right wing of the console. From there they are distributed through a patch panel arrangement supplying the test stations in each of the rooms.

End Rooms Have Individual Test Panels

"A single test panel is provided in each of the end rooms and a test panel is provided on each common wall of the center room. Induction regulators mounted in the right wing of the console are used to adjust the voltage of any of the circuits to the value required for test.

"Voltage and current consumed by any device under test can be measured at the main power supply panel, and a recording ammeter, which can be patched into any desired circuit, is provided on the right wing of the console to permit continuous observation of the input of any device under test. Because of the inherent inaccuracies in a meter of this kind, the recording ammeter is used only as an indicator.

All Thermocouples End At Center Panel

"All thermocouples from the individual rooms terminate in the center panel of the console. Again, a system of jacks and plugs are used to permit patching the thermocouples from any one of the four test panels in the rooms into either a recording potentiometer or an indicating potentiometer which are mounted on this same panel.

"A total of 80 thermocouples, 20 from each station in the test rooms are terminated on this panel. Plugs and receptacles are used to provide a quick and easy means of connecting test thermocouples to the power supply and metering panels.

"For measuring pressures, a system of filled capillary tubes are used to connect between high and low-pressure gauges mounted on the control panel and diaphragms mounted in the test stations in each of the rooms.

"Two high-pressure gauges with a range of from zero to 1,000 p.s.i.g. and two low-pressure gauges with a range of from 30 in. of mercury to 300 p.s.i.g. are terminated in each test station with a diaphragm to which the units under test can be connected by a short length of capillary tube.

"This system permits remote gauging with a minimum loss of refrigerant to the gauge line," declared Farquhar.

"There is available in each room, in addition to the power supplied from the control panel, a liberal supply of 120, 208, and 240-volt power from the building supply mains. This power is used to run tools or any auxiliary loads necessary during the testing of an air conditioner or refrigerator.

Few Water-Cooled Units Tested

"A relatively small number of water-cooled air conditioners and other water-to-air or water-to-water units are tested in this laboratory. Consequently, we considered it more economical to provide an instantaneous type water heater with a high recovery rate and a mixing arrangement to obtain the necessary 80° F. entering water, than to provide a recirculating system and use the heat from the the condenser of the device under test as a water heater."

"All compressor motors and auxiliary motors employing inherent protection as well as all high-impedance protected motors are subjected to a locked-rotor test to determine whether the protector or the high impedance of the motor winding will prevent temperatures exceeding 150° C. under locked-rotor conditions.

Three 100-Amp. Circuits Added for Power

"To facilitate this testing, we have provided three additional 100-amp. circuits. These are a 120-240-volt, single-phase, three-wire circuit; a 240-volt, three-phase, three-wire circuit; and a 120-208-volt, three-phase, four-wire circuit. These three circuits provide adequate power for all our present locked-rotor test needs.

"For hydrostatic testing, we have installed two air-operated hydraulic pumps using water as the hydraulic medium. With 100 p.s.i.g. air to drive them, one of these pumps has a pressure limit of 6,600 p.s.i.g. and the other a limit of 20,000 p.s.i.g.

"We selected this particular type of pump because the output pressure can be adjusted easily within very close limits by controlling the input air pressure and because, once the pressure is adjusted, it will automatically be maintained—but not exceeded, even when the device under test stretches or the fittings leak."

Rain test facilities are also provided for testing window air conditioners and other equipment to be classified for "outdoor use."

Silvercraft Names S. A. Maverick, Jr.

LOUISVILLE, Ky. — Silvercraft, Inc., manufacturer of cooling towers, announces the appointment of S. A. Maverick, Jr. as its representative in the states of Texas, Louisiana, Mississippi, and Oklahoma.

Maverick attended the University of Texas. Since then he has served with the Maritime commission in New Orleans, acted as regional manager for Chrysler Airtemp in Houston and has also served with a couple of York distributors. For the past six years he has operated as a manufacturers representative in this territory.

Bush Appoints Geishert To Head Engineering

WEST HARTFORD, Conn.—Bush Mfg. Co. has announced the appointment of Edwin C. Geishert as chief engineer.

He is heading both developmental and production engineering of the company's line of air conditioning, refrigeration, and heating products.

Geishert attended Utilities Engineering Institute and Acme School of Tool Design and is a member of the American Society of Refrigerating Engineers.

Prior to his present affiliation, he was chief engineer with the Compression Air Conditioning Div. of Servel, Inc. for three years. Earlier, he had been plant superintendent with United Conditioning Corp., chief engineer with Lewis Engineering Co.

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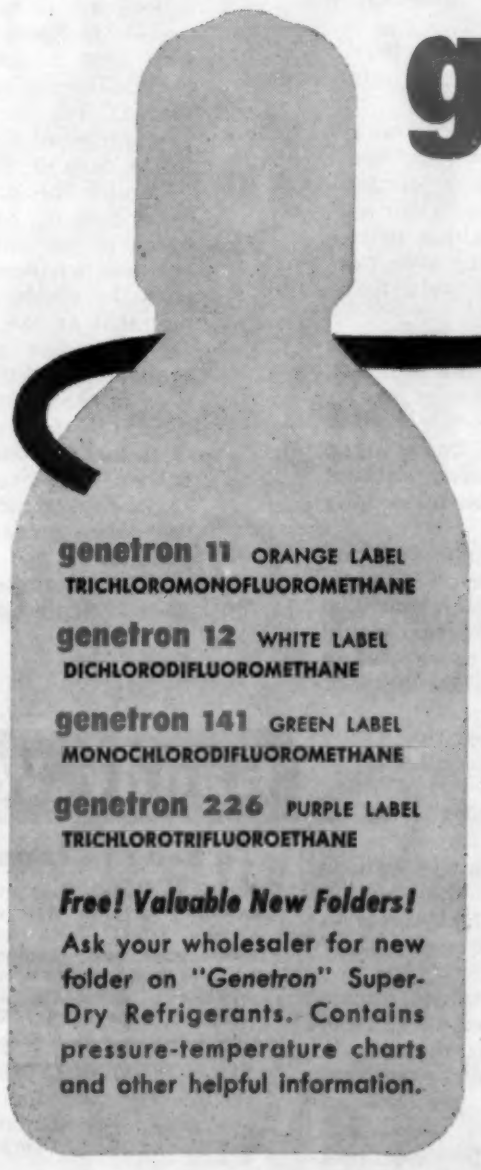

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There's a **genetron** *Wholesaler Near You!*

Coast-to-coast, America's leading Refrigeration and Air Conditioning Wholesalers feature *"Genetron" Super-Dry Refrigerants.* There's one as near to you as your telephone ready to supply you with complete stocks of *"Genetrons"* and with up-to-the-minute data on their uses.

Remember—*"Genetron" Refrigerants* are super-dry! Their moisture content is exceptionally low; their over-all purity, extremely high. They meet the industry's most exacting refrigerant specifications . . . are freely interchangeable with comparable fluorinated hydrocarbon refrigerants produced by any other manufacturer. Follow the industry-wide trend to Super-Dry *"Genetrons."* Insist on *"Genetrons"* when buying refrigerants.

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VOLUME 76, NO. 13, SERIAL NO. 1,393, NOVEMBER 28, 1955

They'll Do It Every Time

by

Jimmy Hatlo

LOOK, WALDO, I JUST RAN INTO A DEAL IN MY TOWN THAT WE COULD REALLY CLEAN UP ON··· I KNOW I CAN GET THE FRANCHISE FOR THE SCHOOL BUS··· I GOT AN IN WITH THE SCHOOL BOARD···AND A GUY LIKE YOU WITH SOME DOUGH TO INVEST WOULD BE SITTIN' PRETTY···
ANGLEWORM HAS MORE HOT DEALS THAN A LAS VEGAS TABLE···ALL HE NEEDS IS SOMEBODY ELSE'S DOUGH!
HE'S IN BUSINESS FOR HIMSELF RIGHT NOW. HE JUST USES THE OFFICE AS A BASE OF OPERATIONS
THE LAST BRAINSTORM HE HAD WAS A REVOLVING GOLDFISH BOWL FOR TIRED OLD GOLDFISH··· SELF-WINDING, NO LESS..
HE'S SORT OF LOST HERE. HE HASN'T BEEN HAPPY SINCE THE BLACK-MARKET DAYS
TUNING IN ON THE CO-WORKER WHO IS ALWAYS PROMOTING SOME DEAL.
THANX AND A TIP OF THE HATLO HAT TO JIM R., SIOUX CITY, IA.
JIMMY HATLO
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Time To Trade Viewpoints

Great many people now reading this issue of AIR CONDITIONING & REFRIGERATION NEWS are enjoying the Ninth Air Conditioning & Refrigeration Exposition at Atlantic City.

It's time for *trading* dollars and products. Perhaps, more important, it's a time for *trading* ideas and viewpoints.

From all over the world manufacturers, contractors, distributors, dealers, special agents, servicemen, and buyers of every category rub shoulders, bend elbows, exchange experiences, argue—and, all in all, obtain new light on old problems.

Maestro of this all-industry extravaganza is George Jones, revered managing director of the Air-Conditioning and Refrigeration Institute. Nobody knows better than he that trading provocative and controversial thoughts and experiences is the quickest route to progress.

'Tis altogether fitting and proper, then, that we devote the remainder of this particular editorial page to the following communication from George Jones.

* * *

Air-Conditioning and Refrigeration Institute
1346 Connecticut Ave., N.W.
Washington 6, D. C.

Editor:

The case of the Fairmont Foods Co. versus Burgum, Attorney General for the State of North Dakota, has been of considerable interest to our industry. This is particularly true of the memorandum decision rendered by District Judge George Thom, Jr.

This decision is a very interesting one, and I, personally, am very interested in the philosophy by Judge Thom.

Since you have stood for years at the very top of my list of good friends and outstanding citizens who have been carrying the torch for individual freedom and initiative in this country, I thought that you, too, would be interested in this decision.

I am calling it particularly to your attention in the belief that you could, by printing this decision in its entirety, in AIR CONDITIONING & REFRIGERATION NEWS, give a much needed lift to your countless readers in their fight against the continual encroachment of governmental restrictions and limitations on one's opportunity to profit and prosper in proportion to one's ability to render service to the public. I do hope you will see fit to do so.

GEO. S. JONES, JR.
Managing Director

COPY

State of North Dakota, County of Burleigh — In District Court, Fourth Judicial District

Fairmont Foods Company, Plaintiff,
vs.
North Dakota, Burleigh County, North Dakota, Defendants

MEMORANDUM DECISION

Plaintiff brings this action for a declaratory judgment and for an injunction to test the legality of Chapter 303 of the 1955 Session Laws, which law seeks to regulate unfair trade practices in the dairy industry.

Plaintiff alleges that the attempted regulations are unreasonable and unconstitutional and in violation of Section 13 and 16 of the North Dakota Constitution, and that they also violate the provisions of the 14th Amendment to the Constitution of the United States.

The statute provides that a dealer who sells dairy products to a retailer shall not: "Furnish, give, lend, sell or rent any advertising materials or matter except materials or matter advertising the vendor's own product, providing that not more than one-third of the space or cost in the advertising material or matter be used to identify the retailer."

It is not pointed out by the defendants wherein a violation of this section of the statute is unfair to anyone, wholesaler, retailer or public.

Section 1—(2) d of the act provides: "Loan or underwrite loans except that vendors can help retailers buy dairy refrigeration, storage, display and selling equipment, when the loan is for no more than ninety per cent of the purchase price, secured by a chattel mortgage bearing five per cent interest rate and payable in not more than thirty-six months."

The defendants fail to show wherein a violation of this provision would be an unfair trade practice, or that such practice is unfair to wholesaler, dealer or public. The laws of this State permit interest at seven (7%) per cent per annum. We know of no law or custom prohibiting loaning money without taking security. Any other kind of business may do so.

Section 1—(2) e attempts to make the contract between the wholesaler and the dealer. We know of no such restriction on any other bidder, and it is not shown wherein a violation of this Section would be an unfair trade practice. In many cases dealers of small means could not engage in business of sale or dairy products.

Section 1—(2) f is so indefinite that this Court does not understand it. It is so indefinite as to make it unfair.

Section 1—(2) g makes it unlawful to "extend or give credit to any retail outlet in excess of thirty days payable fifteen days thereafter." It is not pointed out wherein a violation of this Section constitutes an unfair trade practice. It attempts to restrict the usual rights of parties to make their own contracts.

In Section 2 of the Act the Legislature undertakes to declare all contracts in effect July 1, 1955, now in effect, void within six months. In my opinion the Legislature does not have the power to void existing legal contracts under the pretense of regulation.

It is claimed that it is within the "police power" of the State to make such regulations. This is the familiar excuse for interference in the business of the people, and does not impress this Court.

It is not shown that any of the prohibited trade practices lead to monopoly or in injury to competitors. It is common knowledge that there are many wholesalers, all seeking retail outlets.

It does not appear that the "little fellow" in the retail trade desires this regulation. In our opinion many small dealers will be put out of business if this law be permitted to stand. The Return of the defendants indicate that some of the wholesalers in North Dakota are most interested in enforcement of this law.

"A regulatory statute enacted in the exercise of the police power must be reasonable. Its real purpose must be to protect the public health, morals or general welfare, and it must be reasonably required and suited to attain that purpose. It cannot masquerade as an exercise of the police power and arbitrarily invade personal rights or private property. It cannot disregard the constitutional guarantees. And whether it does so, is a question for the courts to determine."

"What we have said regarding the statute is, of course, no reflection upon the Legislature which enacted it. Beyond question the legislative motive and purpose were good. But it is a matter of common knowledge that pressure groups are frequently able to bring about legislative action they believe will be to their advantage by their argument that it is needed for the protection of the public. And such is nothing new."

The above is quoted from State vs. Cromwell, 72 N.D. 565. In this decision the Court also seems to approve of the dissenting opinion of Judge Fisk in the case of State vs. Armour & Co., 27 N.D. 177.

Under the doctrine of the Cromwell case it appears that it is of no public concern the size of the space of an advertising sign, the terms of credit between wholesaler and retailer; whether a retailer pays the wholesaler cash for equipment or terms of payment or the matter of giving security.

There has arisen in this nation an urge to regulate everything. There is practically no business in this state that does not have to take out a license to do business. This has caused the creation of numerous boards and bureaus and inspectors to bother and interfere with the businessman.

In my opinion this law cannot be upheld under the police power of the State, nor upon any other ground.

The Demurrer is therefore overruled.

Dated: September 2, 1955

BY THE COURT:
/s/ Geo. Thom, Jr.
District Judge

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Hinky-Dinky Chain Modernization Includes Fixtures, Conditioning

OMAHA, Neb.—An extensive modernization program of American Stores Co., which operates 35 Hinky-Dinky supermarkets in Nebraska and western Iowa, got into high gear in the fall of 1955. New refrigerated vending equipment was installed in six supermarkets during October.

The Hinky-Dinky super at Missouri Valley, Iowa, not only got new refrigerated cases, newer-type shelving, modernistic lighting, and other improvements, but got year-round air conditioning as well.

At Hinky-Dinky No. 5 in Omaha, 92 ft. of produce cases were installed. The new cases, like the other installation by Hinky-Dinky, bear the Tyler label and were especially designed for the chain on request of E. Robert Newman, director of the engineering and store planning department of American Stores. Twenty feet of frozen food cases also were installed in No. 5.

New frozen food cases were installed in several other Omaha Hinky-Dinky supers.

At Hinky-Dinky Store No. 44 in Council Bluffs, Iowa, a 36-ft. new dairy case was put into operation.

Climate Supply Co. Becomes Corporation

DALLAS — Climate Supply Co., which has been operated as a proprietorship since Oct. 1, 1954, has been incorporated and will continue business as Climate Supply Co., Inc., it was announced recently by R. F. Polley, president.

Some of the employes are now stockholders of the company and will participate in the future profits, he said.

The firm is a wholesaler of air conditioning and refrigeration parts, supplies, and equipment. It has been operated as a proprietorship since Polley became the sole owner on Oct. 1 of last year.

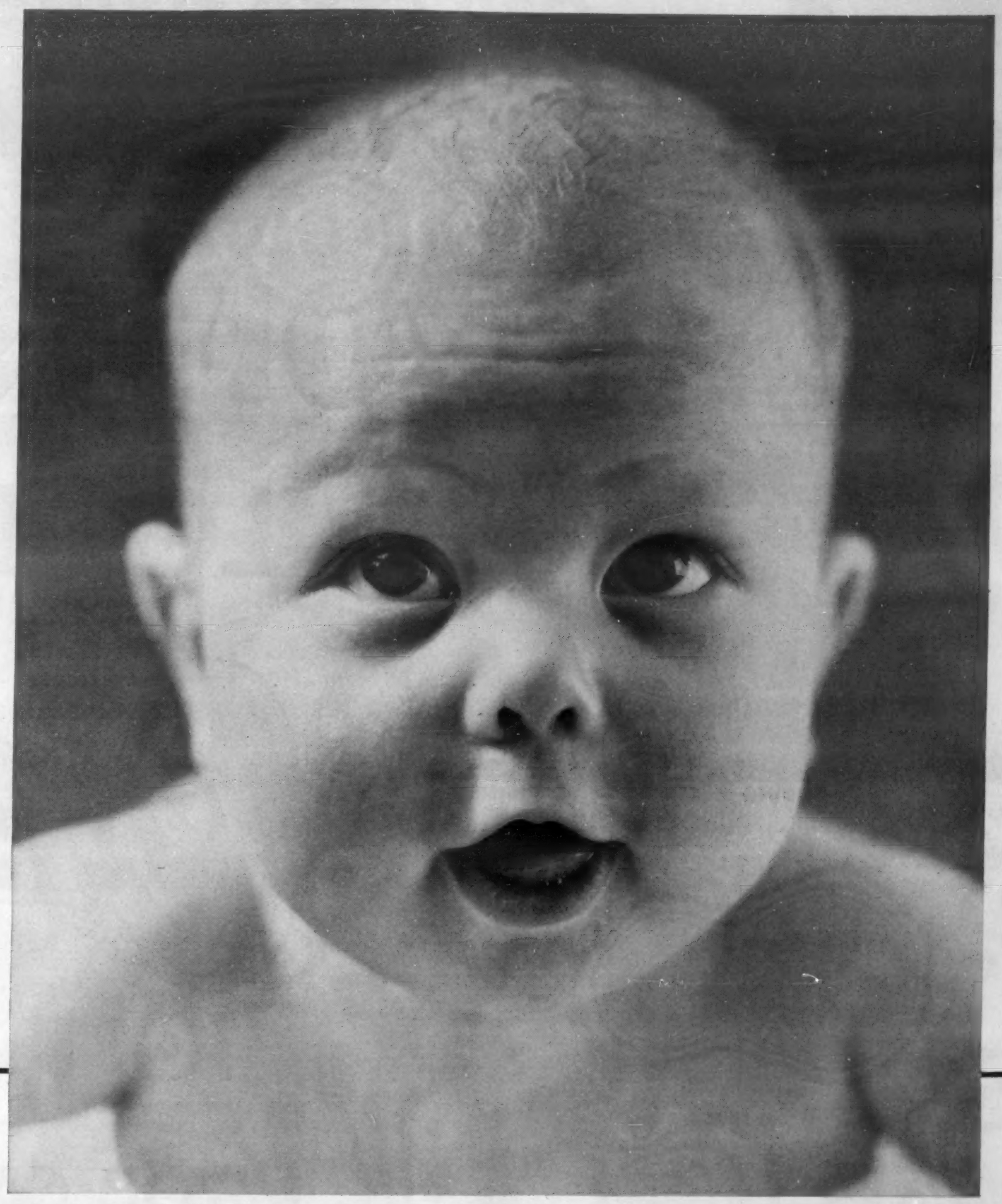
"Our first year has been very successful, and I wish to be the first to give credit to the loyal and capable employes who have made this possible," Polley stated. "For some time I have been planning to offer these employes an opportunity to participate in the profits."

With this thought in mind, the company was incorporated, he said.

Hardy Co., Birmingham Handles Servel Cooling

EVANSVILLE, Ind. — The Hardy Corp. Birmingham, Ala., has been appointed distributor for Servel air conditioning products in the Birmingham trading area, it was announced recently by H. R. Nielsen, manager of the air conditioning division of Servel, Inc.

Its officers are Frank L. Hardy, president, and Robert T. Young, manager of Servel sales. Young was formerly Servel's zone air conditioning manager for Alabama, Mississippi, and southern Louisiana.



"This Time, Pop, I'm not all wet.....

"You'll hit the jackpot of the Show at Booth 130. You'll see in action the greatest idea since the safety pin. You'll be eligible for the Peerless Booth Prize. Bring that $400.00 Prize home, Pop, and I'll swallow ten bed time stories about how tough you had it in Atlantic City."

Smart words, Pop. Your adviser may frequently be "all wet", but this time . . . we shall be waiting with a welcome to show you how right he is.

BOOTH 130 9th Exposition, Air Conditioning and Refrigeration Industry Atlantic City, November 28 - December 1, 1955

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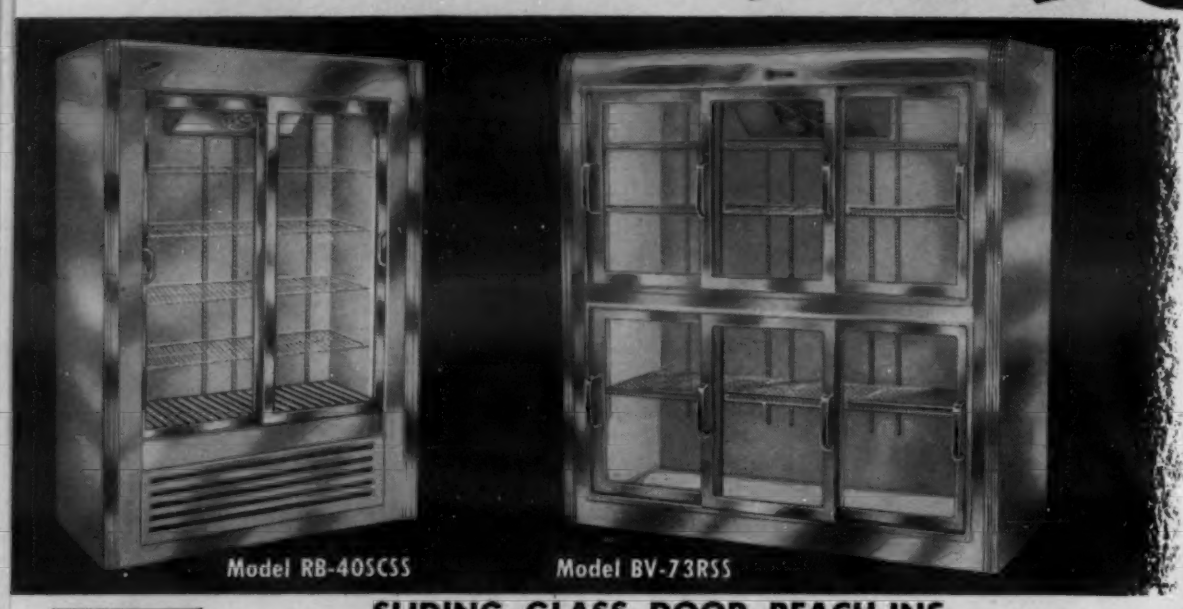
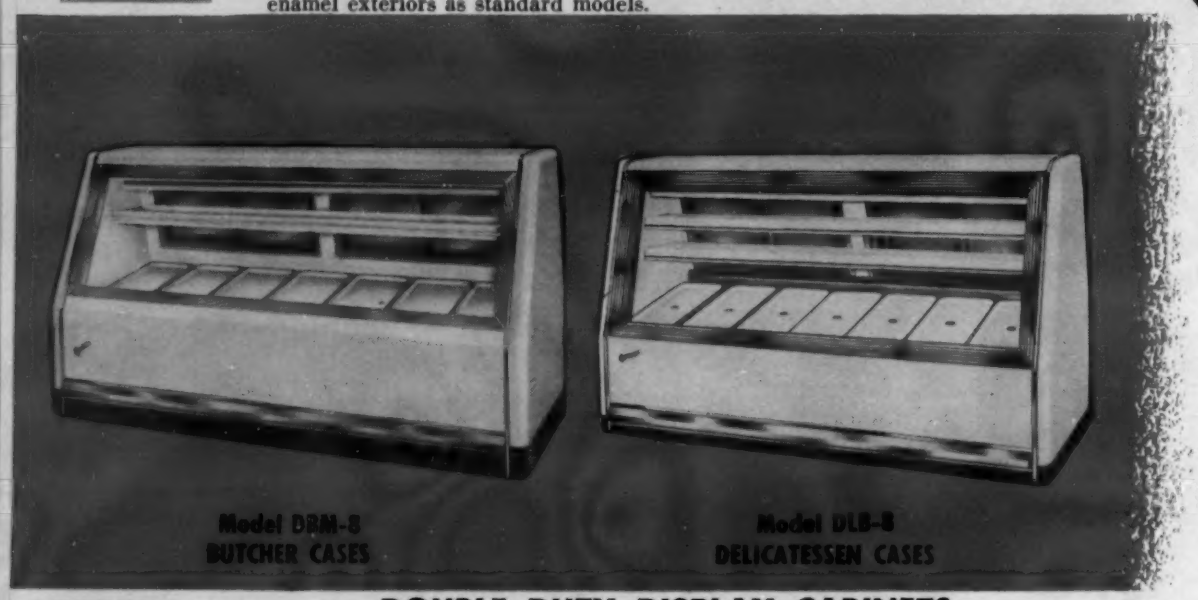


Model RB-405CSS Model BV-73RSS

RB and BV SERIES

SLIDING GLASS DOOR REACH-INS

The RB SERIES is especially manufactured in 24" depths for use in narrow food stores and restaurants, where aisle space is at a premium. Tall doors allow for greater visibility of foods that are attractively displayed. Ideal for modern, quick, self-service stores. Also available in 30" depths and baked enamel exteriors as standard models.



Model DBM-8 BUTCHER CASES Model DLB-8 DELICATESSEN CASES

DBM and DLB SERIES

DOUBLE DUTY DISPLAY CABINETS

Your display cabinet is the most important fixture in your store. Its sales producing value is as only good as its display. Coldin's modern Butcher and Delicatessen cabinets are designed for the retailer to serve his trade efficiently and promptly with proper refrigeration of his products. Available in 6, 8 and 10 ft. lengths.

Model DL-52SC Model DL-52SC Rear View Also available in 6 ft. self-contained

DL SERIES

DOUBLE DUTY COMPANION DISPLAY CABINETS

This display case will make the ideal dairy and packaged food department for the small retailer and the perfect companion case for the large merchant. Here is a fixture that makes each product look handsome. The lighting effects compel attention from every passing customer. Available in 52" and 72" lengths.

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Coldin NEW YORK

YOUR KEY TO BETTER REFRIGERATION

LINE

"YOU CAN SELL EVERY FOOD RETAILER"

Feature for feature you can't beat Coldin's eye-catching line of commercial display refrigerators for faster sales. Offering a complete selection of these handsome models plus precision engineering will assure your making the sale.

If you are now stocking only part of the line make sure you are equipped to do the entire job. Don't stop with a few models... Coldin has a cabinet you can sell to every food retailer! Display and sell the outstanding Coldin line with pride.

See the line at the show... or write for all the facts... NOW!

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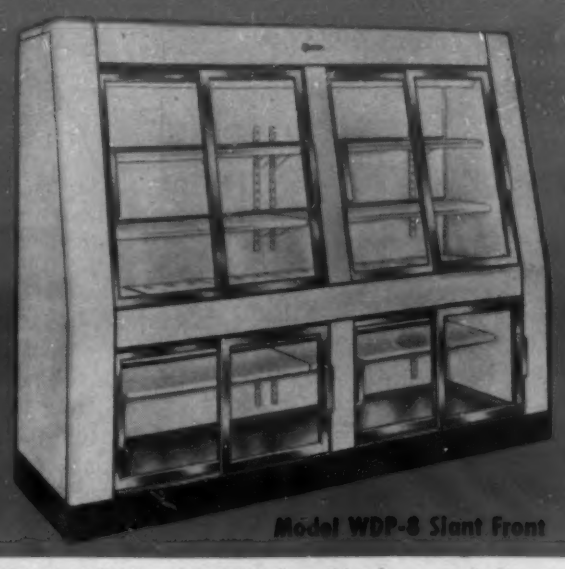
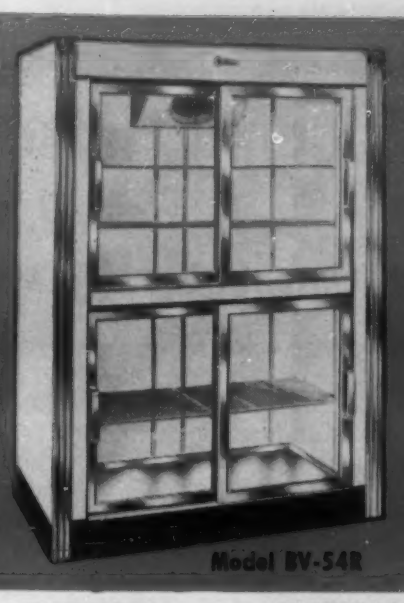


Model WDP-8 Slant Front



Model BV-54R

Model BV-54SCSS

BW and WDP SERIES

All Purpose DAIRY AND BEVERAGE WALL CASES for Display and Storage

High, wide and handsome in every size and price bracket. The immense capacities offers limitless display possibilities for increased food sales. Rust proof construction with gleaming white acid resistant procelain enamel. Five huge display levels. Smooth sliding insulated glass doors. Available in 6, 8, 10 and 12 ft. lengths.

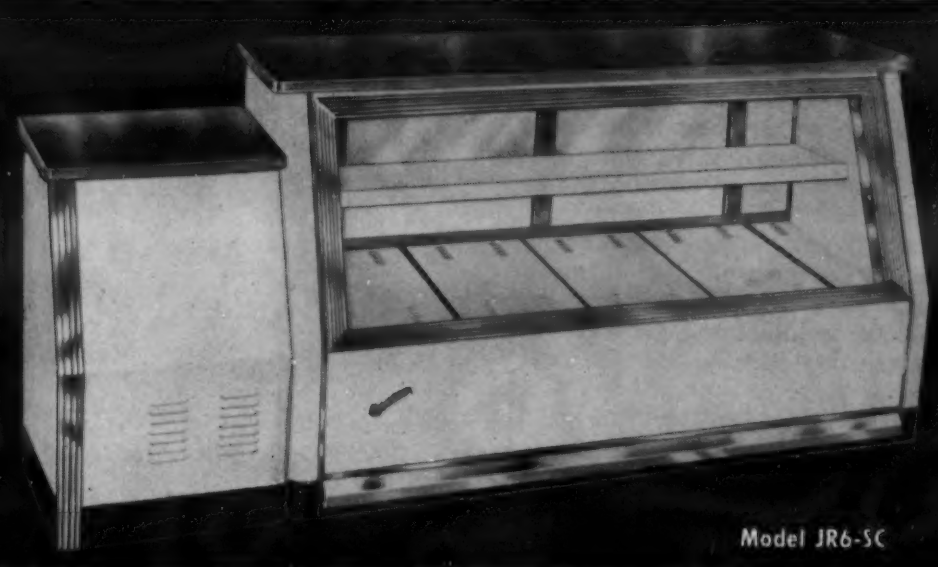
BV SERIES

SLIDING GLASS DOOR REACH-INS

A full line of super models with more conveniences. More variety of models, both remote and self-contained in gleaming white baked enamel or brilliant stainless exteriors. More food keeping dependability with Coldin's precision engineered refrigeration.

Model FV41-4

Model FV41-4 Rear View



Model JR6-SC

FULL VISION COUNTER SERIES

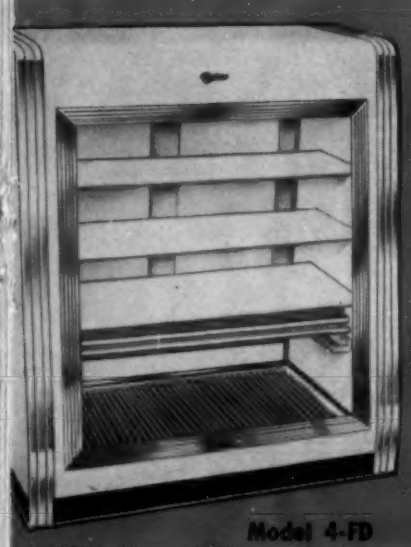
FULL VISION • COUNTER HEIGHT 41" • FORMICA TOP

Ideal DAIRY, DELICATESSEN AND BAKERY DISPLAY CASE — Tremendous full vision display section allows customers to see what is on display quickly. The convenient Formica top aids in servicing customers. Rust proof steel constructed cabinet that embodies everything you desire for dependable refrigeration. Available in 4, 6, 8 and 10 ft. lengths.

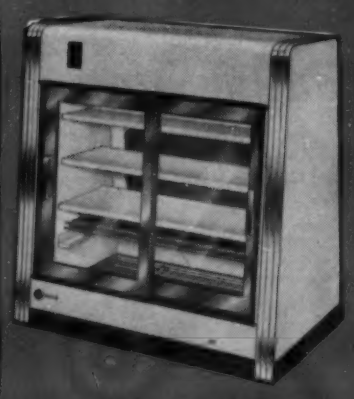
JR. and SJ SERIES

THE FAMOUS "JUNIOR LINE"

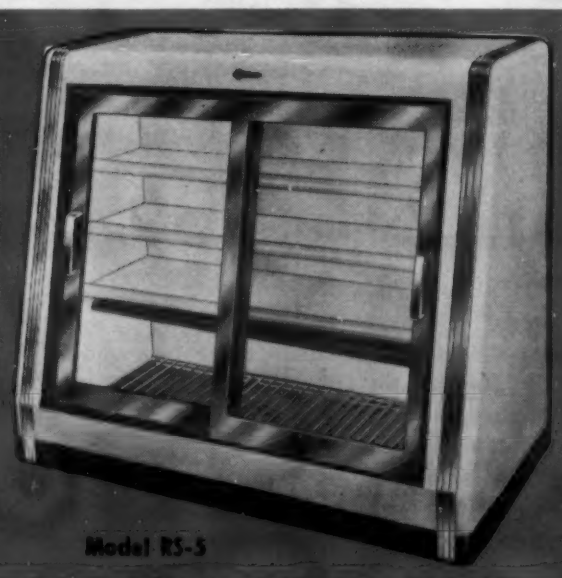
Feature for feature you can't beat Coldin's triple duty cases for Display, Storage and Work Space! They have been eagerly accepted as the finest high quality complete refrigerator serving thousands of satisfied retailers. Available in 4, 6, 8 and 10 ft. lengths, remote and self-contained.



Model 4-FD



Model 4-FD Rear View



Model RS-5

Model LT-5

Model LT-5 Rear View

FULL VISION SERIES

SPOTLIGHTER FULL VISION or FRONT SERVICE DISPLAY

Watch your sales increase when you display either Bakery Goods, Whip Cream, Confectionery, Luncheon Meats, Milk, Cheese and Dairy Products. Ideal for the large or small retailers. The 'RS' Line of front service display for the retailer that needs a case that displays and sells from one side. Fits conveniently against walls or anywhere in the store. Available in 4, 5 and 6 ft. lengths, remote and self-contained.

LT SERIES

FULL VISION LOW TEMPERATURE DISPLAY

The merchandiser that offers the complete and effective display for Ice Cream, Cream Cakes, Whips, Specialties for bakery shops and specialty food departments. Working from this cabinet offers every convenience, plus modern design and maximum display. Available in 4, 5 and 6 ft. lengths.

Model FT-6

Model ADF-84

Model 23-SC

FROZEN FOOD MERCHANDISERS

TRIPLE DUTY FROZEN FOOD ANGLE FREEZER

Display, Storage, Work Space—the angle front reveals an attractive display of frozen foods. Roller glide doors that slide at feather touch are praised by shoppers who like self-service. Only 40" high, yet provides the maximum in capacity in less space. Available in 6 and 8 ft. lengths, remote and self-contained.

AUTOMATIC DEFROST FREEZER— OPEN—SELF-CONTAINED

Here's the reigning beauty of the frozen food merchandisers. Featuring the refrigeration system that employes the electric heater type of defrost with electric clock mechanism. The most advanced cabinet for frozen food merchandising.

A COMPLETE, ONE UNIT FROZEN FOOD COMPARTMENT

The most popular spot in your store will be the Coldin—one stop frozen food department, which displays at a glance variety of frozen food on sale through beautiful illuminated colored photos. A masterpiece of fine design. Available in 54", 70" and 96" lengths, with and without superstructure, remote and self-contained.

from the smallest to the LARGEST Coldin has a CABINET for every RETAILER

What Is Air Conditioning Horsepower?

Engineer Contends Home Unit Codes, Rules with Certain Hp. Levels Unsuitable to New Market

ST. LOUIS—"All codes, rules, etc., which affect home air conditioners and require them to have certain levels of starting current and horsepower are unsuitable to this new market [and] . . . should be abandoned," contends Paul W. Wyckoff, chief engineer, Airtemp Div., Chrysler Corp.

"Much of the technical thinking behind many of the local and national codes which affect the electrical design and installation of air conditioners is based on characteristics of open-type air-cooled motors.

"These are greatly different from characteristics of hermetic motors because refrigerant gas cooling removes winding temperature as an important factor," Wyckoff declared at the AIEE conference on application of motors to space heating and cooling equipment held here recently.

Work for Accurate Current Ratings

Instead of using the present codes and restrictions, Wyckoff said, "we should work together to accurately mark the electrical performance of each unit on its name plate: starting current and running current at a high-normal condition to be defined by joint industry action.

"This will give utility, installer, and inspector the information they need," he declared. "It will also meet the needs of the home air conditioning industry."

In his talk, which was titled "What Is an Air Conditioning Horsepower?" Wyckoff limited his discussion to single-phase residential air conditioners, emphasizing that the present and predicted growth of this field requires reconsideration and change of codes and standards as they affect hermetic motors.

He cited Underwriters' Laboratories standards, NEMA motor and control standards, the National Electrical Code, utility regulations, and local codes.

"Although to the air conditioning designer they seem at times to be annoying kibitzers, none of us would curtail the fundamental services they render the buying public," Wyckoff said.

"They will also be supported over the long term by the air conditioning industry if soundly based on consideration of safety and fairness. Purely arbitrary restraints will be rolled aside by the rising tide of customer demand," he warned.

How Do You Define Compressor Hp.?

"In a somewhat elementary way, I wish to discuss compressor motor horsepower. This figures prominently not only in the design of motors and controls for home air conditioners, but also in the provisions of many codes. Because the same motor components will give vastly different performance if they are used in a compressor than in a standard open motor, much confusion has resulted.

"Horsepower as a technical unit of energy consumption has a simple, clear meaning: 33,000 ft. lbs. per min. As a description of a standard open motor, it is a little less clear—a 3-hp. standard motor is one which will deliver up to about 3.45 hp. As a description of hermetic compressor motor, it is so vague we are frequently asked, 'What is an air conditioning horsepower?'

Trick Use of Words Doesn't Help

"The situation has not been helped by many in our industry who advertise more cooling for the same money by trick use of the word 'horsepower,' which has only the vaguest connection with ability of the unit to cool. The horsepower of the compressor motor, nominal, actual, or fancied—high or low—is of no benefit to the customer. He is buying cooling capacity," stressed Wyckoff.

After describing typical air conditioning systems, Wyckoff pointed out that "the pressures at the inlet and discharge of the compressor are determined within rather narrow limits by the comfort conditions maintained inside the house and by the weather outside.

"If the temperature of the air in the house and passing over the cooling coil is 76° F. and 50% relative humidity, a typical condition, the suction temperature will be around 40°-50° F. Similarly outside temperature determines discharge pressure.

"The other factor besides the suction and discharge pressures which determines the horsepower required to drive the compressor is its displacement—the volume of gas pumped. This value is directly determined by the cooling capacity of the air conditioner—more cooling, more displacement, more horsepower.

Can't Win by Design Tricks

"This is not a game that can be beat by design tricks. Our customers and the cooling they need for their homes determines what horsepower will be required for the air conditioning compressor," he said.

"In the design of the standard type open motor, NEMA standards previously mentioned have been very important. By standardizing general purpose motors they have made available the advantages of very high production to the customer using only a few motors at a time. This standardization has resulted in the widespread acceptance of certain performance values associated with motors of a given horsepower."

Table 1 shows starting current, full load current, maximum usable horsepower for standard

(Continued on next page)

TABLE 1

Nominal Hp.	Service Factor	Maximum Hp.	Nameplate Amperes	Starting Current
2	1.2	2.4	12	50
3	1.15	3.45	17	70
5	1.15	5.75	28	100

A "TOUGH CUSTOMER" AMERICAN-STANDARD

F. M. VAN DEVENTER, *Consulting Engineer reports results observed in his own home throughout grueling performance and acceptability test.*

F. M. Van Deventer's spacious ranch-type home at 1895 Quimby Lane, Westfield, N. J.

Few home owners are as well qualified as this particular "tough buyer" to judge an air conditioning installation. F. M. Van Deventer, M. E., New York Consulting Engineer, who lives in Westfield, N. J., has the technical knowledge and test equipment it takes to put an air conditioner through its paces and measure the results precisely. His praise of the American-Standard air-cooled system, which he purchased for his own home in the summer of 1955, is significant because it's so *factual*. Here is an engineer speaking—not just a man who's happy about his escape from New Jersey's summer heat!

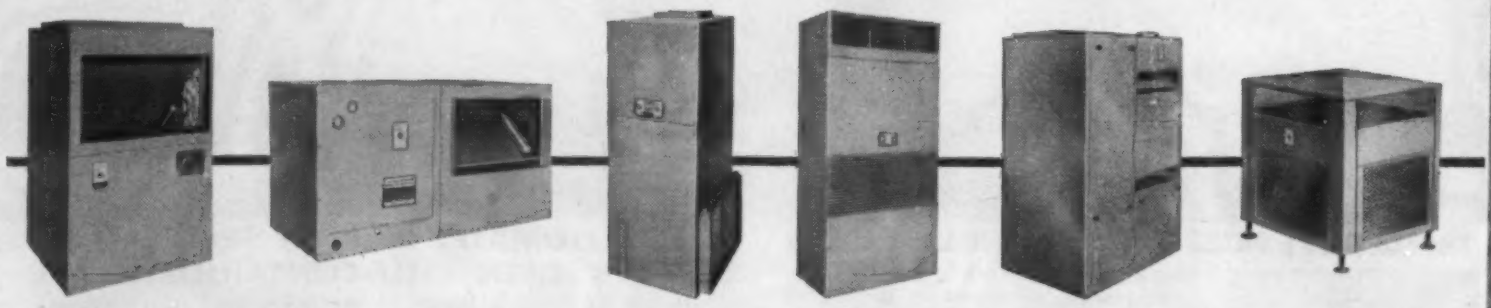
"To satisfy myself," says Mr. Van Deventer, "that the installation was completely adequate and as guaranteed, I performed a full-day capability test on the equipment, using conventional test code instrumentation and techniques."

Excerpts from Mr. Van Deventer's test report are quoted in the following summary with his permission.

Operating Conditions. "The test day (August 17, 1955) being a 90-degree day, the control thermostat should have been set at, say, 75°. However, since the purpose of the test was to develop the capability of the installation, particularly with respect to the guarantee, *it was decided to lock the controls in the "ON" position.* This would determine the true capability of the equipment in building up *maximum* rather than optimum temperature difference."

(In a letter accompanying his test report, Mr. Van Deventer stated that, "Certain inherent characteristics of the building and the existing air distribution system were such that the contractor was hesitant in guaranteeing the usual 15° difference between outdoor and indoor temper-

AIR-COOLED . . . WATER-COOLED . . . RESIDENTIAL . . . COMMERCIAL



Add-on cooling units use home furnace blower for air distribution; water cooled; compact, easy to install; 2, 3 and 5 hp sizes.

Horizontal add-on cooling units utilize blower and duct system of new or existing warm air furnace; water cooled; 2 hp or 3 hp.

Blower-equipped, water-cooled models; 2, 3 or 5 hp. Can be tied in with forced air heating systems or used independently.

Commercial package models, water-cooled; 2, 3 and 5 hp sizes for individual or multiple installation in stores, restaurants, offices.

Year 'round air conditioners, gas-fired or oil-fired, with 2 hp or 3 hp water-cooled refrigerant circuit under same jacket.

Outdoor, air-cooled condensing unit, 2 hp or 3 hp. Evaporator units for horizontal or vertical air flow are available.

ALL HAVE 100% HERMETICALLY SEALED REFRIGERANT CIRCUITS . . . ALL ARE COVERED BY 5-YEAR PROTECTION PLAN

For more information about products advertised on this page use Information Center, page 54.

Figure 1

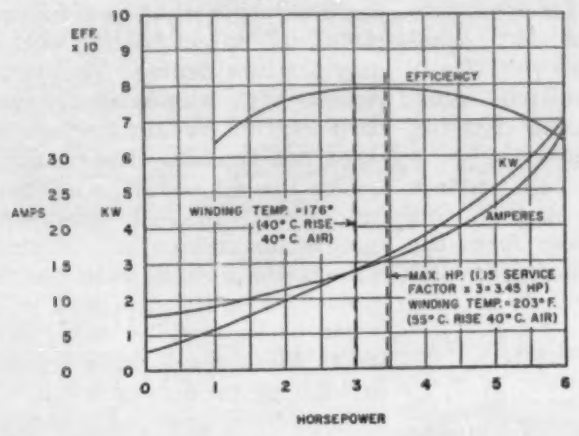
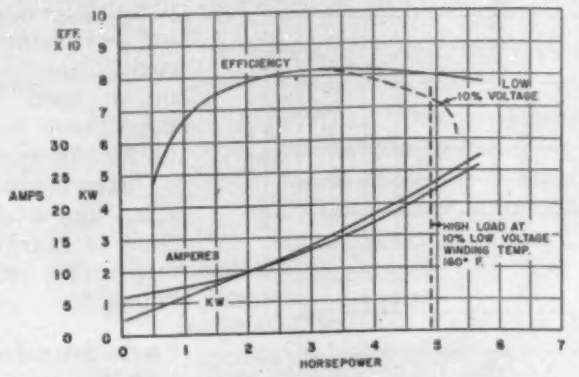


Figure 2



Air Conditioning Horsepower--

(Continued from preceding page)
2, 3, and 5-hp. single-phase motors.

"These values appear in many local and national codes and are used for selecting wire sizes, starting equipment, etc.

"Fig. 1 shows the performance curves for a 3-hp., single-phase, general-purpose open motor. Air is the cooling medium. The winding temperature at rated horsepower (176° in 104° F. air) is defined by the standard. The maximum horsepower is limited to about 1.15 times the rated horsepower by the standard and by the fact that winding temperatures rise too high for good life beyond this load.

Winding Temperature Not Limiting Factor

"The performance of one make open-type motor built to the NEMA standard is very like that of another. The maximum usable horsepower of a 3-hp., one-phase motor is about 3.45 hp.," Wyckoff explained.

TABLE 2

Nominal Hp.	Service Factor	Maximum Hp.	Nameplate Amperes	Starting Current	Starting Cur. ÷ Running Cur.
3 (Standard)	1.15	3.45	17.0	70	4.1
3 (Hermetic)	1.63	4.9	20.8	72	3.5

"Winding temperature is not a limiting factor for a motor used in a hermetic refrigerant system where the cool returning gas flows over the windings. If a rotor and stator similar to those used in a standard open motor are inserted in a hermetic compressor, they can be loaded almost to the breakdown point without high winding temperatures.

"Fig. 2 shows typical performance curves for 3-hp. single-phase hermetic motor. Note that what would be called a 3-hp. open motor can in a compressor easily carry 4.9 hp.," he said.

Table 2 compares certain performance characteristics of a 3 hp. open with a hermetic motor.

TABLE 3

Rated Cooling Capacity Tons	Needed Starting Current	Corresponding NEMA Hp.
A. 2.65	70	3
B. 2.75	72	None (3.1?)
C. 3.25	82	None (3.5?)
D. 4.4	100	5

"Differences in service factor, maximum horsepower, name plate current, and starting current are obvious. Is there any doubt that the term '3-hp. motor' is useless as a measurement of compressor power consumption or cooling capacity?

"This fact has been readily recognized by many electrical engineers familiar with our business. For this reason the National Electrical Code now has separate sections covering hermetic compressor motors and it is not required to mark motor horsepower on the name plate," Wyckoff commented.

"Note from Table 2 that an important benefit from the higher loading of hermetic compressor motors is the lower ratio of starting to running current. This means more electrical revenue to the utilities for a given investment in the supply system.

Starting Current Open Motor Factor

"Starting current is a factor associated with open motors which is also a definite limitation on hermetic motor performance. The maximum horsepower which can be taken from a single-phase motor is limited by starting current—even when starting torque requirements are low. A large part of the starting inrush is due to the main winding.

"Fig. 3 shows the maximum horsepower which a typical compressor motor can supply for a given starting current. The effect of this is to limit the amount of cooling which can be supplied by an air conditioner having a given starting current. This is explained in Fig. 4.

"The cooling capacity of a home air conditioner is usually given at a standard condition of temperature and humidity: 80° F. and 50% relative humidity inside and 95° F. and 40% outside.

Unit Must Operate Continuously Without Tripping Overload

"To be troublefree anywhere in the United States market, it is also necessary that the unit operate continuously without tripping any of its overloads or safety devices at the following extreme load condition: 95° F., 50% inside; 120° F. outside; 10% lower than rated voltage.

"This high-load condition determines the horsepower that must be available to drive the compressor. It is related to cooling capacity at the standard rating condition as shown in Fig. 4.

"If a unit is to deliver 2.75

(Concluded on next page)

BUYS...TESTS...PRAISES AIR CONDITIONING

ature. In fact, a contractor representing competitive equipment recommended a 5-ton installation and doubted that any 3-ton unit would suffice.)

Here's what the test of the 3-ton American-Standard unit revealed: "After reaching a stable condition, the observed temperature difference was in excess of 20°. It is concluded that the 3-ton unit is more than capable of maintaining proper cooling comfort in this house . . .

"Indoor relative humidity decreased during the initial hour of operation and stabilized . . .

"After stabilization, the indoor absolute humidity was about 50% of the outdoor absolute humidity. This, of course, is one of the important factors in establishing a satisfactory comfort condition."

Temperature Stratification Test. "Because of unfavorable location of registers, and the known high temperature in the overhead or attic space (110°F), it was anticipated that there would be a considerable vertical stratification of room air. . . .

(However) "The observation of 1° intervals between the four observation points (floor level . . . face level when seated . . . face level when standing . . . and ceiling) and only 3° between floor and ceiling, was surprising and is considered highly favorable."

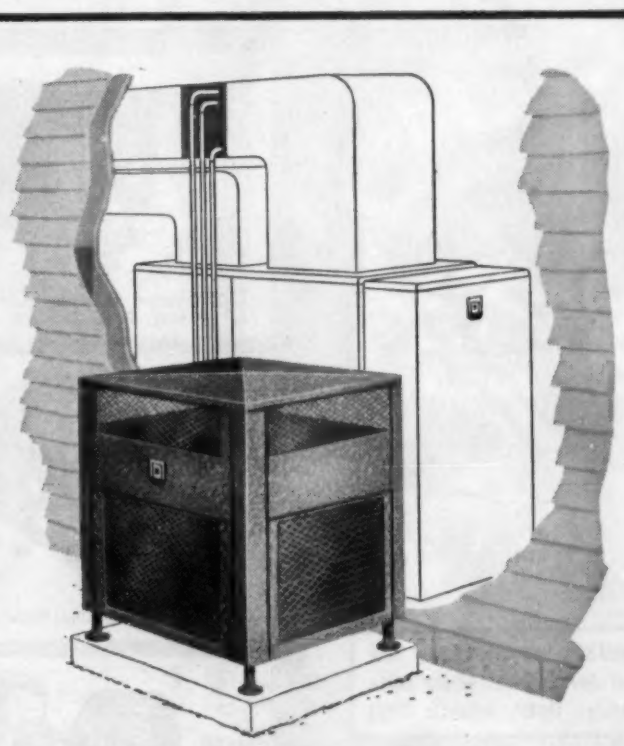
Temperature Variation Between Rooms. "Observations made throughout the day showed a difference of only 1° to 3° between the several rooms . . . a condition considered favorable and highly satisfactory."

Power Consumption.

Compressor and condenser fan and distribution blower	3.5 kw
Distribution blower only	0.4 kw

Since the extra power consumption added by Mr. Van Deventer's air conditioning installation falls in the 2c per kwh bracket, it follows that the cost of operation when the compressor is operating is 7c per hour; distribution blower alone, 0.8c per hour.

Conclusion. "In view of the foregoing data," concludes Mr. Van Deventer, "it is obvious that the equipment has far surpassed the contractor's guarantee and is more than capable of maintaining optimum comfort conditions in this house."



The American-Standard air conditioner tested and reported on by Mr. Van Deventer is Model AC-3A, a 3 hp outdoor, air-cooled condensing unit. The above diagram of a typical installation shows how it is connected to an evaporator unit in the air discharge duct of a blower-equipped warm air furnace.

See your distributor about American-Standard's complete line

EVERYTHING *for air conditioned comfort*

Warm Air Heating
Summer Cooling
Year 'round Units
Electrostatic Air Filters

AMERICAN-Standard
AIR HEATING
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AIR CONDITIONING DIVISION

AMERICAN-Standard
AIR CONDITIONING DIVISION
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Figure 3

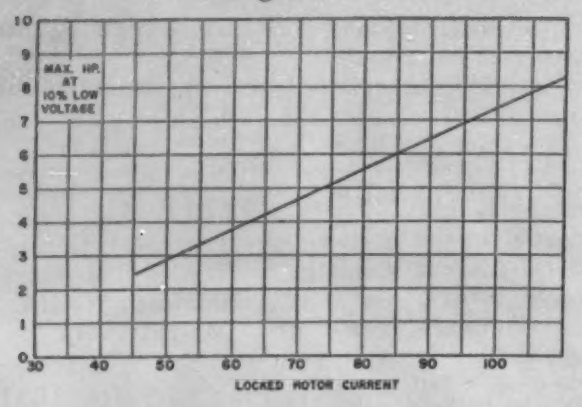
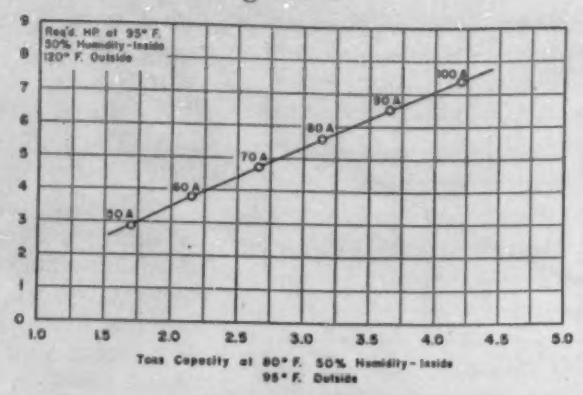


Figure 4


Req'd. HP at 95° F. 50% Humidity - Inside 120° F. Outside
30 A
60 A
70 A
80 A
90 A
100 A
Tons Capacity at 80° F. 50% Humidity - Inside 95° F. Outside

Air Conditioning Horsepower--

(Concluded from preceding page)

tons of cooling (1 ton — 12,000 B.t.u./hr.), it will require about 4.9 hp. at the highest load condition to drive the compressor. A 2.75-ton unit seems to fit the greater part of the residential market of homes in the 1,200-1,700 sq. ft. class," Wyckoff said.

"Superimposed on this curve are points taken from the previous starting current, Fig. 3. From Fig. 4 note Table 3.

"Assume a manufacturer finds that the cooling capacity of unit B or C is needed by the home air conditioning market; he also wishes to abide by present starting current practice.

"Since no motor with 72 or 82 amp. inrush is listed in the tables, he would have to go to the 100 amp. level and pay for a 5-hp. motor. In turn, the utility supply system would have to handle a 100 amp. inrush instead of 72 or 82. Yet the revenue from the electricity supplied would be little higher than from unit A.

"We feel that the standardization of motor sizes, valuable in the open motor field, is completely unsuited to air conditioning and benefits no one. Since residential units are practically never used in multiple, they must have the cooling capacity to fit the typical home.

"Standardization on certain sizes has little to offer in this type of market—even from the standpoint of reducing cost," Wyckoff declared.

Parts Standardization Advantageous

"Standardization of motor parts which affect major tooling investments by motor manufacturers is quite advantageous and does not mean standardization of performance. Motor lamination design in both rotor and stator, outside diameter, etc. is now widely used. Performance is varied by changing number of laminations (stacking length). amount of copper wire, etc.

"These changes greatly affect performance (2 and 3-hp. motors commonly use the same laminations) but affect tooling cost to only a minor degree. This is the reason that standardizing performance in certain horsepower steps can promise little cost saving to the air conditioning market. Practically all compressor motors for residential air conditioners are custom built for the individual unit," he said.

"It is natural to ask, 'Is it really necessary to have a motor capable of producing 4.9 hp. in a residential air conditioner?' Actually, under a typical running condition in a home (usually a little milder than the 2.75-ton waterless unit will use only about 3.75 compressor hp., but compromising the ability of the unit to run under the heavier load of very hot days by failing to supply the needed motor horsepower is asking for trouble.

"Nothing infuriates customers more than loss of air conditioning when it is needed most. Then how about a unit with less capacity which won't need as much motor horsepower?"

1954 Information on New Home Design

Based on 1954 "industry sales information," sales of residential air conditioning units, Wyckoff said, were spread as follows: 32% 2-ton units; 46% 3-ton units; 22% 5-ton units.

Quoting also U. S. Dept. of Labor statistics, Wyckoff gave the following breakdown of new home construction in the first quarter of 1954: 37,000 homes under 800 sq. ft.; 106,000 homes of 800 to 1,300 sq. ft.; 37,000 of 1,300 to 1,800 sq. ft.; 13,800 of over 1,800 sq. ft.

"Air conditioners will have to be built with the right cooling capacity for every important segment of this market. . . . Our own company experience has been that a 2.75-ton unit is about right for the present market.

"We feel that reducing this capacity so that a 70 amp. inrush on the compressor can be attained is pointless. It could also narrow the market for our air conditioners. Especially at this time each manufacturer must be free to meet the future market with units of any capacity he feels will be economical and salable," Wyckoff emphasized.

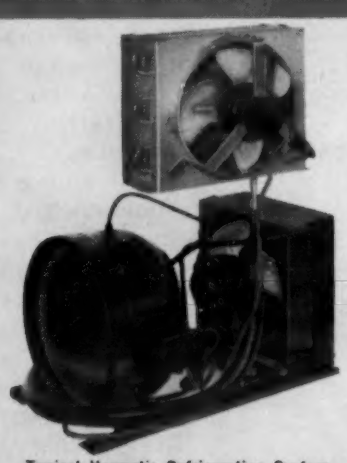
Servel Promotes Martin To Supervise New Dept.

EVANSVILLE, Ind. — Clarence P. Martin, an employe of Servel, Inc. for 14 years, has been promoted to supervisor of a newly-created sales-service order department, it was announced by John R. Morrill, vice president and general manager of the company's commercial refrigeration division.

Martin, who has been a division supervisor of customer service contacts, started in the company's city service office in May, 1941. Later the same year he was transferred to the commercial refrigeration division and in 1947 became assistant user contact manager. In 1951 he was promoted to user contact manager.

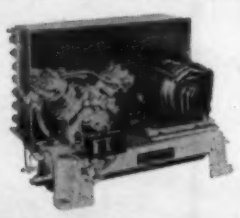
In his new position, Martin will be responsible for the handling of all orders for finished products and parts.

KELVINATOR'S GOT SOMETHING FOR YOU THAT'S ENTIRELY NEW!

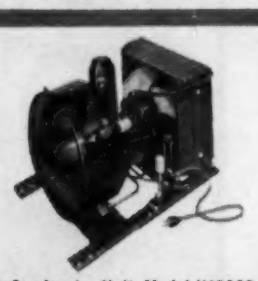


Typical Hermetic Refrigeration System

Hermetic Compressor
Model DK3S2S; ¼ H. P.



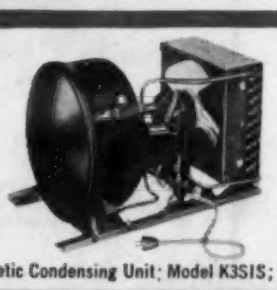
Combination Air-Water Cooled Condensing Unit; Model OAW-100; 1. H. P.



Hermetic Condensing Unit; Model K4S2CR; ½ H. P.

Hermetic Condensing Unit; Model 6D2CA; ½ H. P.

Make it a MUST! See this totally new refrigeration development in our suite at the Claridge Hotel, Atlantic City!



Hermetic Condensing Unit; Model K3S1S; ¼ H. P.

BE SURE TO VISIT US IN ATLANTIC CITY!

American Motors precision-built equipment gives you dependable, guaranteed refrigeration with highest efficiency and lowest operating cost. Since 1914 Kelvinator units have been the standard for the industry in almost every type of application. This year, more than ever, it will pay you to compare American Motors quality before you buy. And remember . . . we've got something totally new and different for you to see in Atlantic City.

American Motors Corp. CONTRACT DEPT. KELVINATOR DIVISION

Detroit 32, Michigan

SPECIALISTS IN REFRIGERATION SINCE 1914!

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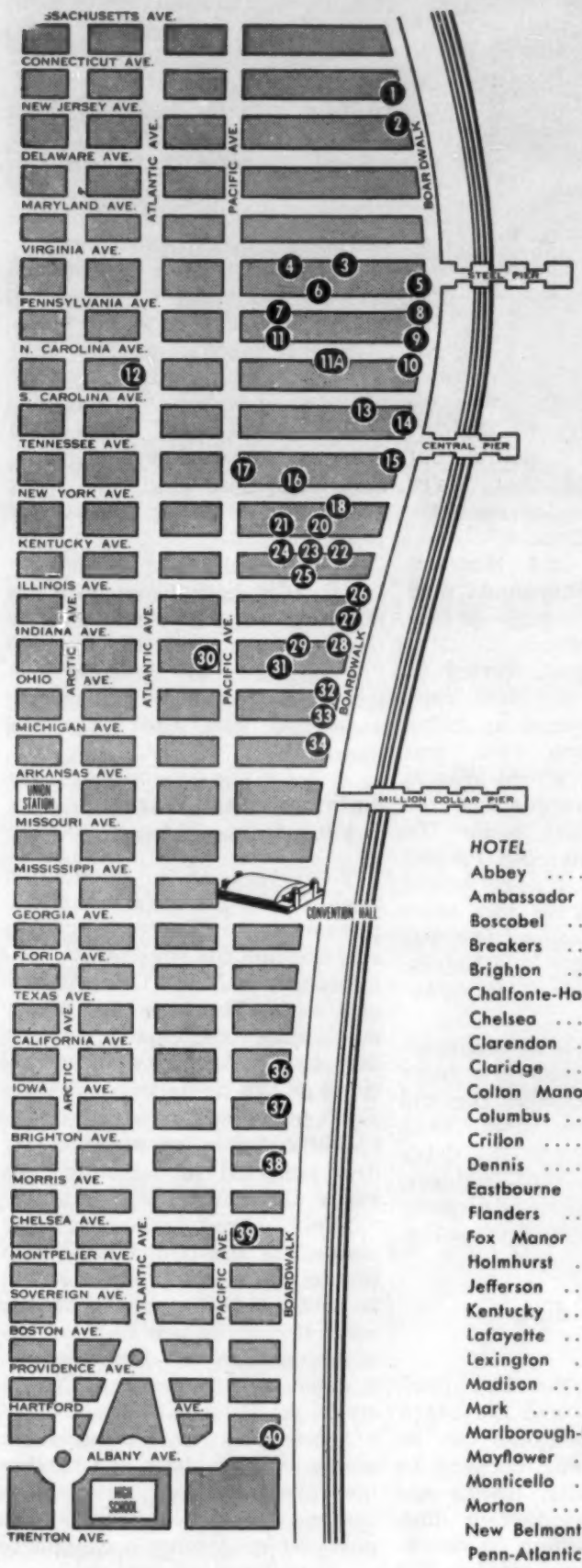
Atlantic City Boardwalk Hotel Map



HOTEL	NO.
Abbey	8
Ambassador	37
Boscobel	21
Breakers	1
Brighton	27
Chalfonte-Haddon Hall	9-10
Chelsea	38
Clarendon	4
Claridge	28
Colton Manor	7
Columbus	17
Crillon	29
Dennis	33
Eastbourne	30
Flanders	16
Fox Manor	35
Holmhurst	6
Jefferson	23
Kentucky	24
Lafayette	11
Lexington	18
Madison	25
Mark	39
Marlborough-Blenheim	32
Mayflower	15
Monticello	20
Morton	3
New Belmont	14
Penn-Atlantic	12
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Exact-to-Scale Bulk Milk Cooler with Removable Parts Is Developed by Wilson as a 'Model' Sales Tool

SMYRNA, Del. — When a product weighs between 1,000 and 4,000 lbs., demonstration would seem a formidable problem for the average traveling salesman. Not so for the sales representatives of Wilson Refrigeration, Inc., nor for this firm's distributor salesmen.

A new sales tool which makes demonstration possible is an exact-to-scale model of the Wilson bulk milk cooler.

Scaled ¼ in. to the inch, the model is fabricated from the same heavy-gauge galvanized steels, stainless steel alloys, and plastic-type finishes as the actual product. It can be disassembled easily on a desk top, or a farmer's back step.

Parts removable for close inspection and handling include Wilson's drop-in refrigeration unit and pump assembly, milk tank, agitator paddle, water distribution system, and outer cabinet—even the measuring stick.

Patterned after the company's 150-gal. bulk milk cooler, the sales sample measures 21 in. long by 9 in. wide by 16 in. high. It comes complete in handy plywood carrying case.

DEMONSTRATION of Wilson Refrigeration, Inc.'s exact-to-scale model bulk milk cooler, patterned after the firm's 150-gal. product. Measuring 21 in. long by 9 in. wide by 16 in. high, this sales tool comes in a plywood carrying case.

The new selling tool, standard equipment with Wilson personnel, is now also available to all Wilson distributors and dealers on an easy allowance-against-orders basis, according to the company.

More than one dairyman or dealer has been startled to hear: "There's a man with a Wilson bulk milk cooler to see you!" The element of surprise, plus the proved principle of demonstration, are paying off well for cooler sales, say company officials.

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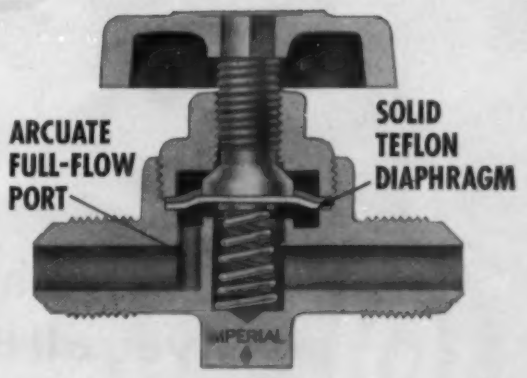

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UNUSUAL shop rebuilding techniques have been combined with unique incentive pay plans for outside servicemen by John P. Langan (right), president, and A. E. Manning, vice president, to make Kelmore Refrigeration Service of Newark, N. J., and Guaranty Service of Orange, N. J. one of the largest appliance service organizations in the country.

PRODUCTION line conveyor racks enable Kelmore Service (above) and Guaranty Service to repair or rebuild hermetic systems for domestic, commercial, and air conditioning units with speed and efficiency.

Hermetic Rebuilding Plants Employ Production Line Techniques (1)

This is the first instalment of an article on the hermetic system rebuilding plants operated by Kelmore Refrigeration Service, Inc. of Newark, N. J. and Guaranty Service, Inc. of Orange, N. J. Considered one of the largest rebuilding operations in the country, the two companies use production-line techniques to completely repair a unit with four hours of labor.

NEWARK, N. J.—Recognized as one of the largest hermetic system rebuilding plants in the country, Kelmore Refrigeration Service, Inc., has packaed a lot of experience in its 10-year history.

Organized in 1945 by John P. Langan as president and general manager, and A. E. Manning as vice president and chief engineer, Kelmore and Guaranty Service, Inc., formed in nearby Orange, N. J. in 1952, serve an area in the eastern states and Atlantic seaboard with a population estimated at nearly 60,000,000.

Both plants are equipped with conveyor systems plus modern testing devices and repair facilities that permit systems to be re-operated on a production-line basis. Kelmore devotes 10,000 sq. ft. of floor space to sealed unit repair work; Guaranty, 9,000 sq. ft. An additional 18,000 sq. ft. at Kelmore and 10,000 sq. ft. at Guaranty are devoted to receiving, shipping, and storage of replacement units.

Neither Cuts Sealed Motor Compressor Units

Neither cuts open sealed motor-compressor units at the present time.

Besides rebuilding household, commercial, and air conditioning systems for manufacturer, the two firms do both in-warranty and out-of-warranty field service within a 40-mile radius. Domestic laundry equipment service is handled as well as refrigeration and air conditioning.

Some accounts, like Kelvinator, Easy, and Tappan, have been serviced for 10 years.

Occasionally Kelmore also does some contracting, "but we limit these mostly to difficult engineering jobs," points out Manning, who adds that "we're now doing some work on automobile air conditioners."

Both Langan and Manning brought wide backgrounds with them into the formation of Kelmore and Guaranty.

Langan, who had started as a page boy for the New York Trust Co. and wound up being an officer of the firm, was "drafted" during World War II to become an executive of the company organized under the Manhattan Engineering Project to handle financial negotiations in connection with the atom bomb development. As the war neared its end, he joined Kelvinator, becoming New York comptroller.

Manning, a Cornell engineering graduate, got his first taste of refrigeration with the old Nizer corporation and then spent many years in the dairy field as a supervising engineer. He is an international director of the Refrigeration Service Engineers Society.

Reason For Dividing Operations

Operation of the two companies—Kelmore and Guaranty—at different locations can be somewhat confusing, perhaps, to the outsider. Both plants are equipped with production lines for hermetic system re-operation. Somes makes are handled at one location, others at the second plant.

This separation of production lines simplifies matters of stocking, etc.

A sharp distinction is made between the two with respect to field service, however. Kelmore handles field service on all heat transfer equipment, explains Manning. This includes refrigerators, freezers, air conditioners, ranges, water heaters, etc. Laundry and dishwasher service is handled by Guaranty out of its Orange, N. J. plant.

"It's hazardous to mix heat transfer and laundry service," Manning declares. "The refrigerator serviceman looks with scorn at the washer repairman, and vice-versa. Each one can't even imagine doing the other's work.

Although the field service operations of both firms have interesting aspects which will be touched upon later, the average "visiting fireman" at either Kelmore or Guaranty is primarily concerned with the rebuilding operations.

Kelmore Plant Has 3 Production Lines

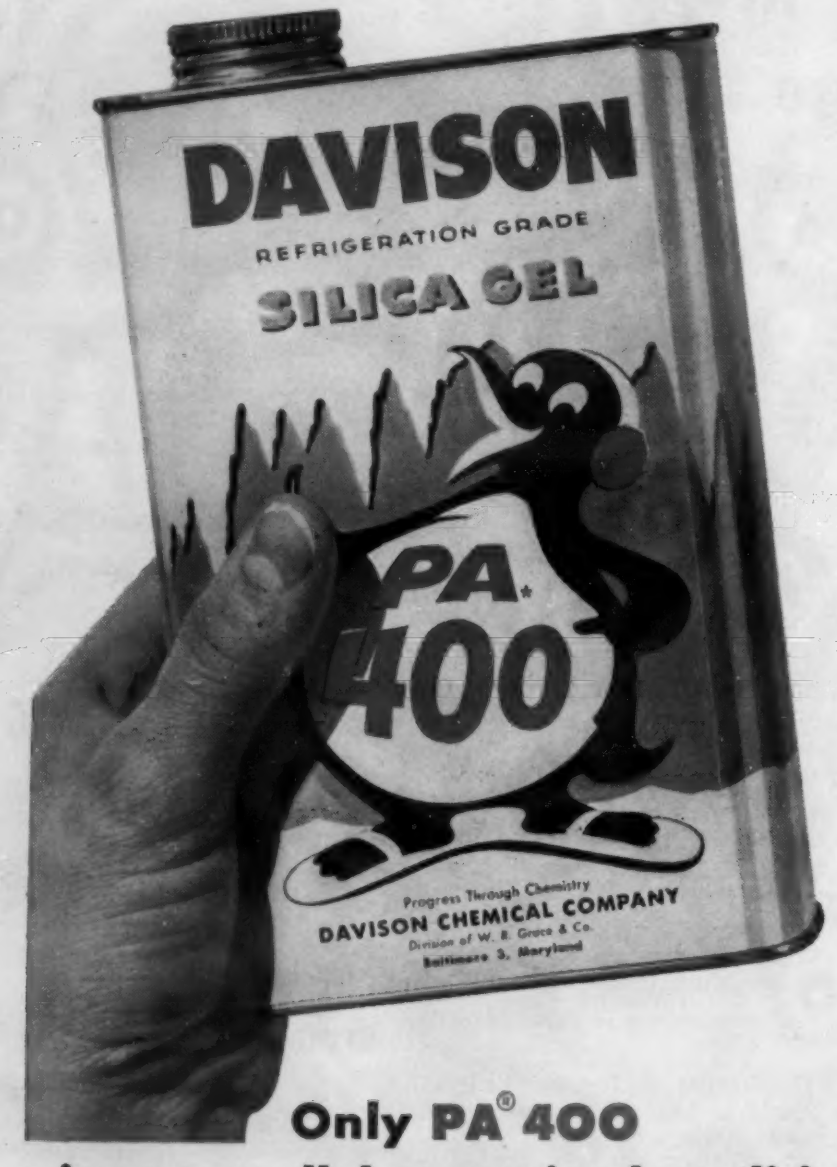
There are three production lines at the Kelmore plant, one primarily for domestic refrigerators, one for window air conditioners, and one for commercial units. The lines are pretty much interchangeable, however, permitting flexibility in operations as the needs vary.

After being uncrated, all inoperative units as received are first analyzed to determine the cause of failure.

"This step," Manning explains, "is the determining factor as to what procedure will be taken in the repair of the unit. Following are four of the many causes of unit defect: 1. burn out, 2, moisture, 3. restriction, 4. leaks.

"Extreme care is taken in analysis of the unit. To further insure care in analysis we have designed and constructed an analyzer containing a megger to

(Continued on next page)



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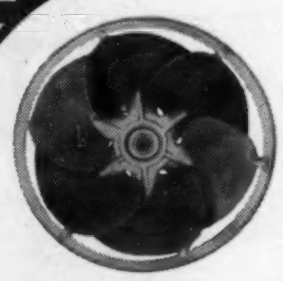

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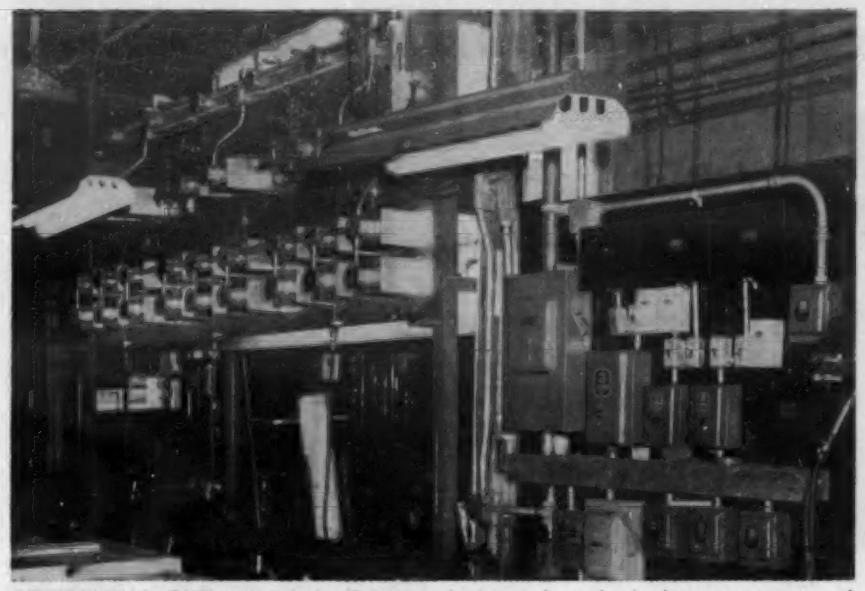

DEHYDRATING OVEN at left in Kelmore plant can be raised above conveyor rack as shown here to place and remove sealed systems. Banks of infrared lamps in oven are controlled by elaborate panel at right which includes timers that cycle heat lamps on and off to maintain proper dehydrating temperature while units are under vacuum.

Hermetic Rebuilding--

(Continued from preceding page)

determine winding breakdown, a voltage regulator to simulate operating conditions such as low voltage variable from 0 to 130 volts, plus a wattmeter, voltmeter, and ammeter, all of which give a complete picture of unit operation electrically.

Steam Wash Removes Foreign Matter

"All sealed units, after being analyzed, are put through a steam wash for the removal of all foreign matter and to provide clean surfaces for refinish when repair is completed," Manning adds.

Steam is supplied by a Model C. "Kerrick Kleaner" having a capacity of 90 gals. of steam solution per hour. The steam cleaner has been specially equipped with high temperature solenoid cut-off and thermal overload plus a mechanical hand-operated lever type steam valve built into the handle of the cleaner so that the operator may control the steam flow.

A reservoir of cleaning solution that is mechanically mixed with the steam is a part of the system. There is a regulating valve to admit the desired amount of cleaning solution. This valve is closed when the final steam rinse is applied.

From the steam wash the sealed units are moved along the roller conveyors to the repair station where operators check the analysis report attached to each unit and determine the steps needed to make the required repairs.

Repair Job Requires 4 Hours of Labor

"The repair section of the line utilizes the automatic tools necessary to increase efficiency and reduce the time needed to make the repairs," Manning says. "A complete system repair job requires an average of 4 hours labor, including all phases."

Total elapsed time runs longer than this because units are put through an over-night run-in test.

"Actually," Manning comments, "more time than appears on the surface is spent in crating and in paper work."

Power tools employed at the repair stations include pneumatic screwdrivers, wrenches, and nut setters equipped with automatic air line lubricators to insure proper lubrication and long life.

All soldering is done with silver solder, heat being supplied by torches with double, opposing tips using a mixture of manufactured city gas and oxygen as fuel.

Dehydrators, motor-compressor heads, and other components required in repair and replacement operations are pre-heated in electric baking ovens to insure proper dehydration and temperature above ambient.

Also part of the tool inventory is electric welding equipment for special problems that arise.

Hand-operated charging and service valves are eliminated by the use of quick-coupling connectors designed with special springs which are guaranteed leakproof down to 5 microns, according to Manning.

After completion of actual repairs, the sealed systems are then placed, if required by manufacturer's specifications, in an infrared oven having a capacity of 65,000 B.t.u. and subjected to a vacuum of 5 to 25 microns.

"The oven is so designed that the required number of lamps can be directed on the various components of the sealed systems to brings them to the predetermined required temperature and hold the component at that temperature for the required length of time," explains Manning.

This control is accomplished by a series of electric timers which not only control the overall time in the oven but maintain temperature by automatically cycling the infrared lamps on and off.

The oven is installed over one of the conveyor lines, but is mounted in a structure which permits the oven to be raised and lowered by an automatic electric hoist.

Systems and components remain stationary on the conveyor lines, but is mounted in a structure which permits the oven to be raised and lowered by an automatic electric hoist.

Systems and components remain stationary on the conveyor during the dehydrating process. The entire oven is raised well above the conveyor rack to facilitate placing or removal of units from the oven.

Vacuum for the dehydrating process in the two plants is produced by five Kinney vacuum pumps: a Model VSD-556 rated at 13 c.f.m., a DVD-8810 rated at 110 c.f.m., two KD-110's rated at 110 c.f.m., and a KDH-130 rated at 131 c.f.m. The last pump operates at 535 r.p.m.; all the others at 450 r.p.m.

(To Be Continued)

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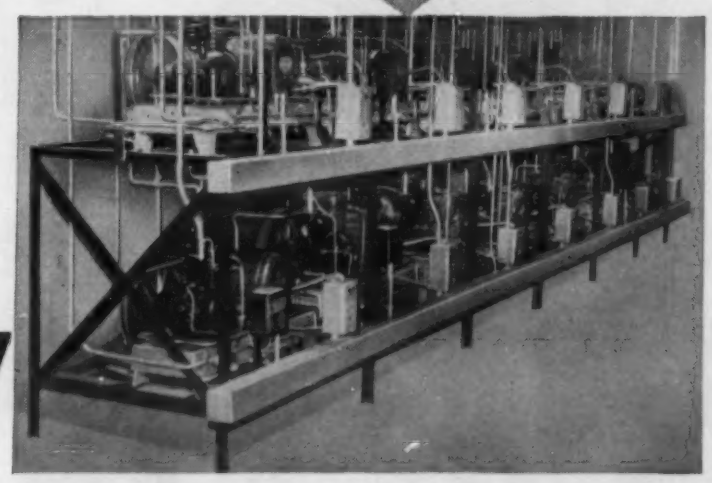

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Contractor's History Shows Growth of Market for Cooling Products

This is the first of two articles on Electric Products, Inc. of Jersey City, N. J., a company which might well serve as an illustrative example of the history of the growth of the refrigeration and air conditioning industry, and the market for the industry's products. The second and final instalment of the series will appear in an early issue of the AIR CONDITIONING & REFRIGERATION NEWS.

By C. Dale Mericle

JERSEY CITY, N. J.—From Iceland to the Arabian desert—that's the geographic scope of jobs handled by Electric Products, Inc., a York distributor here.

And if one were to trace the growth and development of the refrigeration and air conditioning industry over the past 20 years, the history of this contracting firm might well serve as an illustrative example.

Founded in the early Thirties by the late Frank W. Hughes, Electric Products has grown from a small contracting firm specializing in commercial refrigeration to the large sales and engineering organization it is today employing a hundred people engaged in all phases of industrial and commercial air conditioning and refrigeration, not to mention a separate, allied firm operating on a wholesale distributor of packaged equipment.

"In those early days a 1-hp. compressor was a big machine," reflects Paul B. Hughes, vice president of the firm.

THIS difficult engineering job doesn't seem to faze Richard L. Hughes (center), president, and other engineering and sales executives of Electric Products, Inc., long-time York distributor in Jersey City, N. J.

Richard L. Hughes succeeded his father as president of Electric Products. Both brothers had been interested in refrigeration and air conditioning from their high school and college days, so it was only natural they joined their father in the firm.

AMONG his many duties as vice president of Electric Products, Inc., Paul B. Hughes keeps close tab on parts inventory.

"We were small enough at first so that we knew every job and every customer," points out Paul Hughes, "and we made a specialty of working closely with wholesale meat houses, something we still try to do.

Converted Walk-Ins To 'Freezer Boxes'

"A lot of our activities involved conversion of walk-in coolers to 'freezer boxes.' By installing cold plates operating on sulphur systems, we provided means for butchers to 'firm up' liver, chickens, etc. In those days, if we could get the temperature down below 20° F., it was a 'freezer,'" he recalls.

Along in 1939 Electric Products turned to a field which was soon to develop into startling proportions—kitchen and restaurant installations. Working closely with kitchen supply houses, the firm got its first big break when it installed the cafeteria refrigeration equipment for a huge aircraft plant built in New Jersey for the French government.

"We had tried to steer clear of defense work at first, but this job brought us into it in a big way," Paul says "This led to many similar jobs for the military.

"Fortunately, we had good connections for getting priorities, but what we couldn't get, we'd make ourselves in our own shop. And when copper tubing became just a memory, we found our prewar experience of using steel piping for 'Freon' gave us a tremendous advantage. We knew the answers to steel piping problems before many contractors ever worked with it," he comments.

Tremendous spurt given to the New York area shipbuilding industry by World War II soon brought Electric Products into this picture, too.

Fitted Ships with Refrigeration

"We fitted many ships with refrigeration, often working 18 to 20 hours a day to meet schedules," recalls Paul.

It was immediately after the war that Electric Products got involved in the Iceland job. In 1946 the U. S. Air Force began turning over to civilian control the base it had used in Iceland for transport service. But the civilians found the large food storage refrigeration facilities had badly deteriorated in the interim.

A hurry-up call brought Richard Hughes and the late Frank Gumbs flying to Iceland. After careful inspection they radiotelephoned instructions to Electric Products in Jersey City. Within two weeks the new

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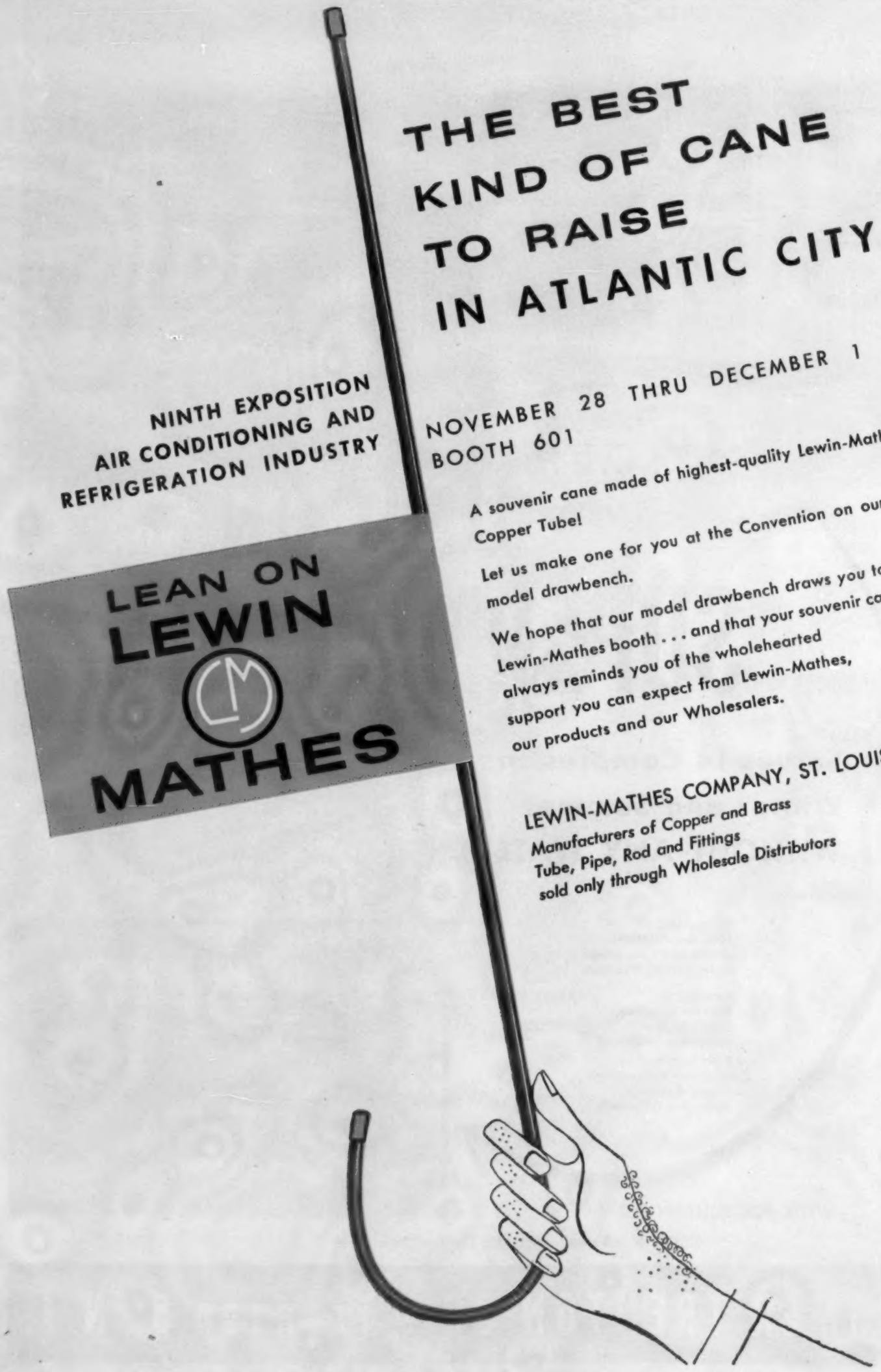
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Contractor's History--

(Continued from preceding page)

equipment had been flown to Iceland, had been installed, and Hughes and Gumbs were back home.

Air conditioning came into the Electric Products picture more and more after the war, but the firm still maintained its good contacts in the meat packing industry as it does today. In fact, the firm installed refrigeration equipment for the first "pushbutton" packing house in the Jersey area.

Industrial and commercial applications of refrigeration and air conditioning performed by Electric Products have been many and varied.

Air Conditioned Desert Ambulances

For example, two years ago the firm was handed the problem of air conditioning ambulances for the hot, dry roads of the Arabian desert. In the scorching heat of Saudi Arabia, about half a million Moslems were making the pilgrimage to Mecca, birthplace of Mohammed.

The grueling trip brought illness to many. Ford-International was commissioned to furnish a fleet of air conditioned ambulances to this area. Using York air conditioners, Electric Products installed a ½-ton unit plus a specially designed electric generator in each of six ambulances.

Had Many Difficult Industrial Process Jobs

This unusual application of comfort cooling can be matched by many equally difficult industrial process jobs. One such was the installation of 11 York packaged units, specially equipped and controlled, for American Colortype Co., a large lithographing and printing firm in Clifton, N. J.

Problem here was to maintain close control over both temperature and relative humidity. In the production of lithographic plates, the plates are coated with a hygroscopic material to sensitize them. For best results a relative humidity of 50% and a temperature of 80° F. are required, but within close limits.

Seven 5-hp. York conditioners and four 3-hp. units were installed, the 5-hp. machines being fitted with finned electric strip heaters. The units are individually controlled by means of a potentiometer type thermostat, four-stage step controller, magnetic contactors, safety cut-out switch, and humidistat. The latter works in parallel with the thermostat to operate the units for humidity control only.

All 11 units are water cooled, being connected to a Marley cooling tower.

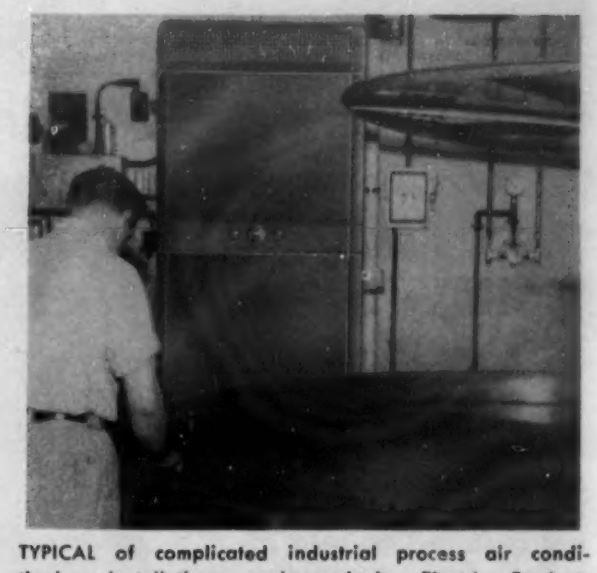
11 Units Connected To Cooling Tower

Another example of process air conditioning is the installation Electric Products devised for Valhalla Mills in Boonton, N. J., which weaves high quality, special fabrics.

Here there was not only the problem of maintaining optimum atmospheric conditions for the plant, but also varying these in different sections of the plant depending on the fabrics being woven.

Solution to this problem involved a 15-ton York unit with ductwork, interlocking controls, filters, and a steam boiler that permit air of different temperature and humidity, if need be, to be delivered to each section of the plant. In addition, a smaller conventional York packaged conditioner handled comfort cooling of the company's offices.

OVERHAULING OF packaged air conditioners is but one of many types of jobs handled in Electric Products" shop under general supervision of Paul B. Hughes, vice president.



TYPICAL of complicated industrial process air conditioning installations engineered by Electric Products was that for American Colortype, a large lithographing plant requiring close control of temperature and humidity.

Still another job requiring close control was the air conditioning installation made by Electric Products for Korby Sports Wear, Inc., clothing manufacturer. In addition to maintaining close control over temperature and humidity for the manufacturing processes themselves, the system was designed to produce comfortable conditions to improve employe efficiency. And just as important, filtering of the air removed lint and dust, thus keeping garments clean and saleable.

(To Be Continued)

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Room Cost Averages Under $600 as Hotel Installs Indirect, Chilled Water Air Conditioning System

By C. Dale Mericle

CHICAGO — With a system producing adequate cooling even though windows are open, the Drake hotel here plans to complete the project of air conditioning all its 667 guest rooms by next summer.

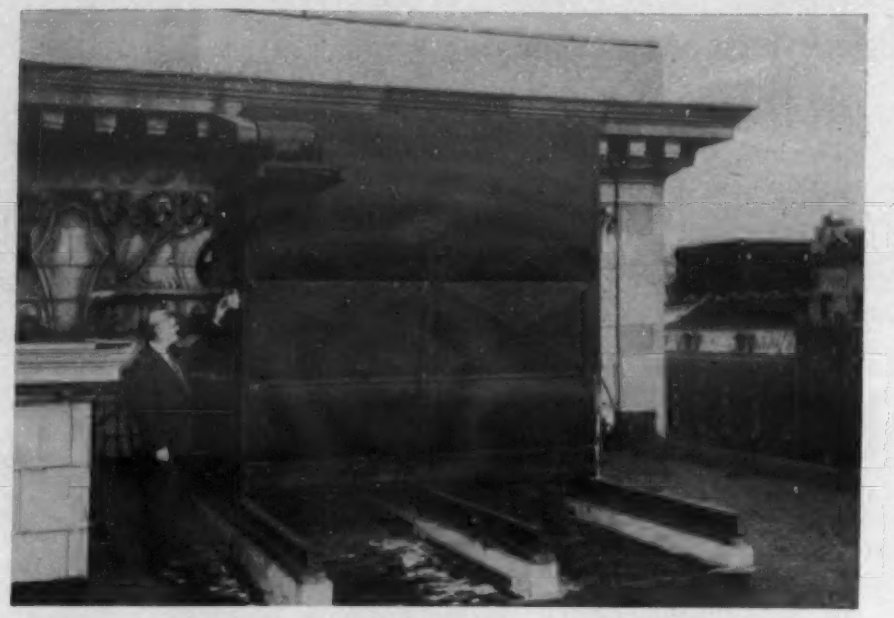
Target date is June 1, 1956.

Already more than 300 rooms have been provided with air conditioning in the project which started in 1954.

Thus far the cost has averaged under $600 a room, a surprisingly low figure for this type of application, indicates J. R. MacArthur, chief engineer of the hotel.

The installation has been handled by Refrigeration Systems, Inc., Chicago contractor, making use also of hotel employes.

MASTER control panel for one of chilled water systems serving Drake hotel guest rooms provides neat arrangement of gauges, switches, and pilot lights. At right is 100-ton Westinghouse compressor.



WATER consumption is kept to minimum for Drake hotel system by Acme evaporative condensers installed on roof. Here Lawrence Dawson, assistant chief engineer checks operation.

An indirect, chilled water system is used in the Drake, 55° F. water being piped to individual fan-coil-filter units in each guest room from cooling equipment located in a sub-roof penthouse.

Two separate chilling systems have been installed thus far, each consisting of a 100-ton Westinghouse compressor, Acme Chiller, and Acme evaporative condenser. The evaporative condensers are located outside the penthouse on adjoining roof areas.

Additional chilling equipment will be required to complete the project.

Not only does the design of the Drake system have some unusual features, but various problems of installation have been solved in unusual ways.

For example, careful analysis determined in advance that it would be less expensive to dismantle an elevator and haul the compressors and chillers up to the penthouse through the shaft than to use conventional rigging methods.

This was despite the necessity of knocking down several walls and replacing them, which MacArthur says "has come to be routine work in the average hotel."

Rigging, of course, is an expensive part of installation, and might offer certain drawbacks for a hotel such as the Drake. In this instance, moreover, the elevator cables in the particular shaft selected were about due for replacement anyway.

Extremely close clearances were involved in the shaft, especially when the long chillers were hoisted up from a subbasement to the 10th floor, from whence they and the compressors were "bulled" up to the penthouse a floor above.

Evaporative condensers, however, where much too big for the elevator shaft, so they were hauled up to the roof of the hotel on the outside of the building.

Why Choose This System?

But why did the Drake management choose this particular system for air conditioning?

"Four years ago conventional window units were installed in a number of guest rooms but did not meet the Drake's particular requirements," MacArthur recalls.

Such units partially blocked the view for guests seated in their rooms; some guests found them too noisy to operate all night; with the windows sealed they felt shut in, and "from a maintenance viewpoint, we have found that the window units must be taken out in the winter, and during the summer we cannot wash the windows without first removing the units," he says.

Various factors had to be considered in the final choice of system, MacArthur indicates. These included minimum space requirements, minimum disruption of hotel operation, least interference with decorative schemes, ability to leave windows and transoms open, in addition, of course, to economy and efficiency of installation, operation, and maintenance.

Prototype Tested In 1953

Prototype of the present sys-

(Concluded on next page)

HOLES for risers were drilled through 9½-in. concrete floors with drilling machine so quiet it couldn't be heard more than one room away.

Hotel System--

(Concluded from preceding page)

tem was actually installed and tested in one transient guest room during the summer of 1953. It was a direct expansion "Freon" system employing a constant pressure valve to simulate chilled water operation.

The chilled water distribution system for the Drake consists of a set of four insulated risers running through closets of the guest rooms. These are four supply, return, reverse return, and condensate drain.

Reverse return piping provides for the chilled water from the lowest and highest rooms traveling the same distance. This prevents short-circuiting and one unit receiving more chilled water than others.

In most instances room layout of the Drake is about the same on each floor, permitting the risers to go straight up from floor to floor. There were some exceptions, however.

To put holes through the concrete floors for the risers, a Howe-Simpson drilling machine was employed. It required about two hours to drill a hole through the 9½-in. thick reinforced concrete floor. Four holes were required for each room, so altogether hundreds of holes were drilled in this fashion.

No Objectionable Noise from Drilling

"Drilling was so quiet that there was no objectionable noise more than one room away," points out MacArthur.

Incidentally, no more than four guest rooms were tied up at one time during the installation, he comments.

"We estimate we can air condition 200 rooms in six months with only four out at a time," MacArthur says. "If it's decided than we can take eight rooms out at a time, I'm sure we can complete the job by next June."

Closet Contains Cooling Coil Unit

In the closet of each air conditioned room there is an International cooling coil consisting of an all-aluminum case, a four-row copper coil with copper fins, a three-speed blower motor, and an insulated drip pan. Air vents and balancing valves are provided at each unit. Units range in size from ½ to 1½ tons capacity.

The closets act as return air plenums, an intake grille being provided in the wall, usually above the closet door.

Directly inside the intake grille is a Wilson air filter, so designed that it doesn't require a holding frame.

As it turned out, the filter is over-size, but this has been found to be a great advantage, according to MacArthur, for the filters can go as long as a year without replacement.

INDIVIDUAL chilled water blower units are installed near ceiling in closets of Drake hotel guest rooms. Hose is for condensate drain.

Individual control of the air conditioning is provided through a three-speed wall switch fitted with a custom-made brass plate.

Units themselves have tended to be a bit over-size. This, too, has proved helpful in that the blowers can be operated at less than full speed and still provide sufficient cooling effect, it is indicated.

Units Can Recirculate Air 10 Times an Hour

Generally, the units were designed and sized to recirculate air in the room 10 times an hour with the blower operating at full speed.

Thanks to the design and capacity of the entire system and the individual room units, satisfactory air conditioning can be maintained even with the windows or transoms open on a hot day, according to MacArthur.

"To our knowledge, this is a unique feature among hotels in the country," he says.

Guests Say System 'Best In Country'

As for the success of the Drake installation, MacArthur emphasizes that "in the final analysis, it's the guests' opinion that counts, and they say it's the best in the country."

The Drake expects to gain several financial advantages from air conditioning, according to MacArthur.

"July and August are usually losing months in the hotel business here, but judging by last summer's experience, no air conditioned room will be vacant during these months. We received many calls last summer from guests who had already checked into other hotels and found their rooms were not air conditioned.

"Usually, though, our rooms were already gone, even though we charge extra for air conditioned rooms during the summer."

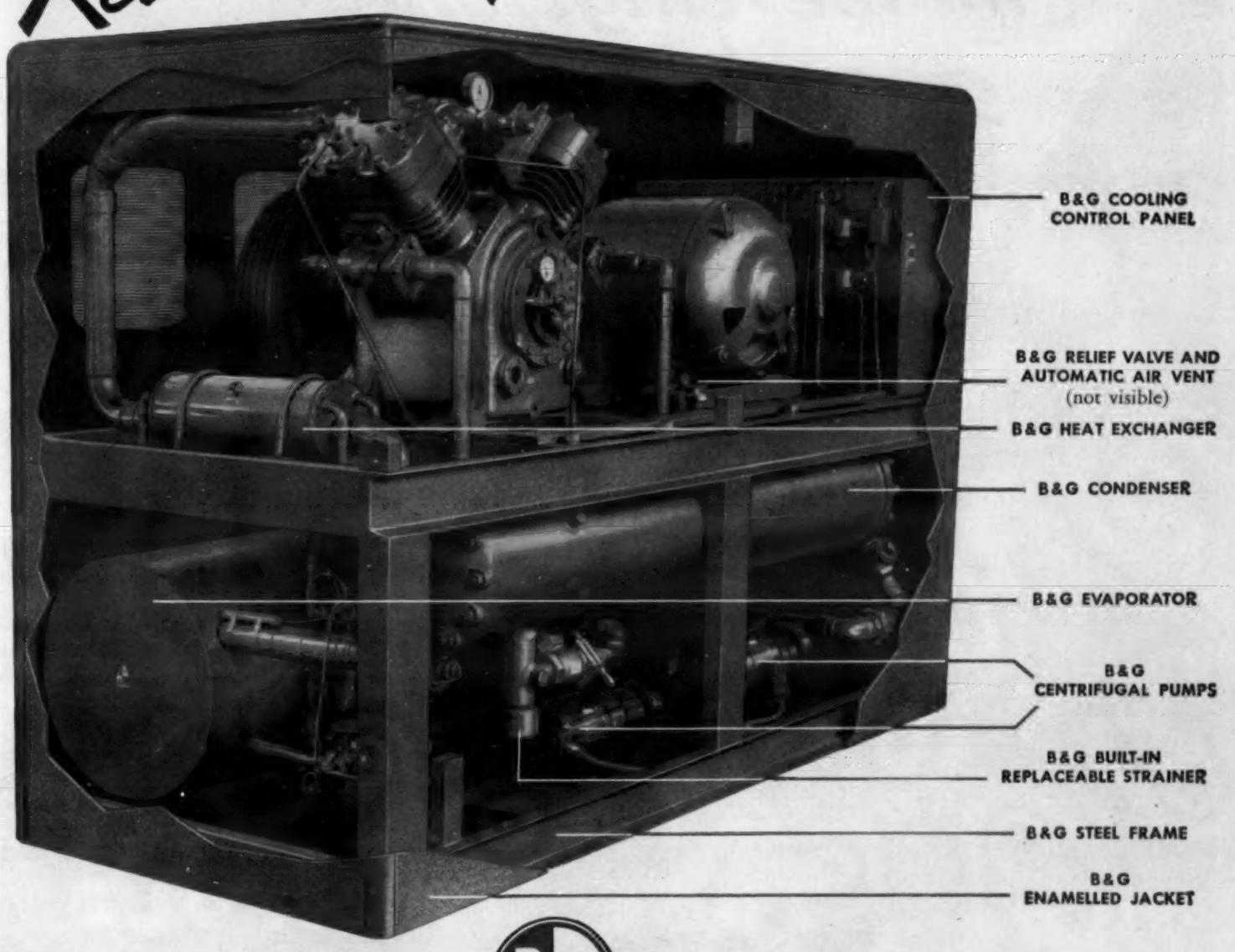
With air conditioning the Drake may also be able to promote conventions during July and August, he added, thereby relieving some of the pressure on the regular convention season.

Young Radiator Opens Chicago District Office

RACINE, Wis.—A new district office opened in Chicago under John J. Sidwell was recently announced by Young Radiator Co. here. It is located in the Engineering Bldg., 205 W. Wacker Dr.

Sidwell, a former sales engineer with the firm, is a University of Wisconsin mechanical engineering graduate. He has been with Young over ten years.

Revolutionary **LIQUID COOLER**



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The B&G Package Liquid Cooler can be specified for a wide variety of applications . . . either as a separate space cooling unit . . . or in combination with a forced hot water system . . . or for the numerous industrial processes requiring controlled cooling of materials. Available in capacities from 7½ to 100 tons.

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3 Refrigeration Circuits, 1 Remote Compressor Needed In Soda Fountain, 90 Michigan RSES Members Learn

GRAND HAVEN, Mich.—Devoting an entire day to soda fountains and allied equipment, the Michigan State association of RSES was the guest of Bastian-Blessing Co. here recently at another in the state series of "clinic" meetings.

The more than 90 persons on hand were taken first on a guided tour through the plant, which is said to be the largest producer of fountains in the country.

Following lunch at the nearby Spring Lake country club as the guests of the company, the group returned to the factory for a series of clinic sessions covering many aspects of soda fountain and carbonator design and servicing.

FUNCTIONS of controls employed on Bastian-Blessing soda fountains are outlined for Michigan RSES group by Carl Holman, chief inspector.

DETAILS of carbonator design and service are explained by Cecil Merriman, national service manager of Bastian-Blessing Co., before an interested group of Michigan RSES members during a "clinic" at the company's Grand Haven factory.

Arrangements for the event were handled by Herman K. Johnson, assistant works manager of the plant, with Wm. A. Clark, program chairman, and Prof. D. J. Renwick, president, of the Michigan RSES association.

In discussing soda fountains proper at the clinic sessions, Johnson pointed out that three refrigeration circuits producing three different temperatures—all hooked up to the same remote compressor—are required in a fountain.

These are for (1) ice cream, (2) syrup rail and storage, and (3) beverage dispenser.

"Ice cream is usually held at about 0° to 5° for good dipping, although this may vary in different parts of the country," Johnson explained. "Also, the ice cream temperature may be kept as high as 8° to 10° in the busiest places for faster dipping.

"The syrup is kept at about 50° F. Because of the sugar content of the syrup, the temperature doesn't have to be too low. Furthermore, too low a temperature makes the syrup stiffer, which is hard on the syrup pumps.

"The beverage dispenser is held at 38° to 40°, although why people want their drinks this cold I don't really know," he commented.

Design Important Problem

Design of the dispenser cooling equipment has been an important problem, Johnson indicated, and a major aspect of that is the desire for the first drink drawn after the fountain has been idle to be at 40° F.

That's virtually impossible, according to Johnson.

For 10 years, however, Bastian-Blessing has been using a dispenser cooling coil developed by Johnson to overcome problems found with other types of coolers, he said.

The Johnson coil consists of parallel sets of tightly coiled tubing dipped in tin for good metal-to-metal contact essential for best heat transfer. This design provides separate tubing circuits for refrigerant, carbonated water, and plain water.

"If one coil should break it won't affect the other circuits," Johnson explains. "Thus, a break in the refrigerant line won't result in water from the cooler getting into the refrigerant lines."

He also pointed out that the bulb of the thermostatic expansion valve is so located that it's in contact with both the refrigerant and the water coil.

"This gives quick response when the drink dispenser is operated," he said.

Carbonator Details Reviewed

Details of carbonator design and operation were reviewed at another session by Cecil Merriman, national service manager for Bastian-Blessing, who explained that the amount of CO_2 gas which water will absorb depends on the pressure of the gas and the temperature of the water.

Carbonated water is usually made by spraying water in a tank filled with CO_2 gas drawn from a cylinder under a pressure of about 110 p.s.i.g. The carbonated water is then pumped to the dispenser where it is cooled to 38° to 40° F.

(Concluded on next page)

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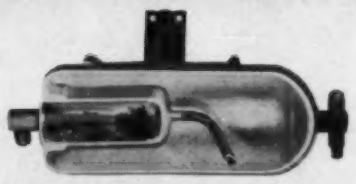

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For more information about products advertised on this page use Information Center, page 54.

RSES Clinic--

(Concluded from preceding page)

"Most service calls on carbonators are for CO_2 leaks," he commented. "Best way to find these is to brush on liquid soap or the liquid kids now use for blowing bubbles.

Serviceman Should Carry Spare Pump, Check Valve

"The serviceman who does any amount of carbonator work probably ought to carry along a spare pump and check valve seats. These would take care of most service calls."

Merriman cautioned servicemen that "carbonated water is an acid solution and can't be used in iron pipe or copper tubing. While carbonated water piped through copper tubing is not a deadly poison, it will make you sick," he warned.

Plastic tubing, block tin, and stainless steel tubing are satisfactory for carbonated water use, he said.

Session on Beverage Dispenser

At another session Ray Arend, in charge of the company's test room, concentrated on the beverage dispenser, specifically on a self-contained unit. He explained that the usual ratio of carbonated water to syrup mix is 5 to 1.

The actual ratio being delivered by a dispenser can be checked by means of a y-shaped fitting attached at the faucet which keeps the mix and carbonated water separate, he demonstrated.

At other clinics the RSES group heard Carl Holman, Bastian-Blessing chief inspector, and Jud W. Forbes and O. E. Johnsonbaugh, both of Penn Controls, discuss various aspects of soda fountain controls.

Plant tours were conducts by Johnson, Holman, C. R. Carlson, chief engineer, and Walter Applegate, production control.

R. J. Kruizenga, works manager, was the chief speaker.

Superior Valve Opens East Coast Warehouse

PITTSBURGH — New warehousing facilities have been established in Bergenfield, N. J. by Superior Valve & Fittings Co., announces George R. Allen, vice president.

"The new facility marks our entry into the warehousing field on the east coast, and is designed to provide better service to our many customers in metropolitan New York and the surrounding states," Allen said. "It supplants our New York City office and will serve as both Eastern District headquarters and warehouse."

Located at 405 S. Washington Ave., Bergenfield, the warehouse is just 100 yards beyond where Teaneck Rd., a through north-south highway becomes S. Washington Ave. Manager of the Eastern District office will continue to be F. Neil Robson; warehouse manager is Bernard N. Hynes.

The Eastern District warehouse will carry a complete line of Superior valves, fittings, driers, accessories, service tools, and replacement parts for the air conditioning and commercial refrigeration, the company announced.

Pollock Rejoins Drayer-Hanson

LOS ANGELES—C. W. Pollock has rejoined Drayer-Hanson, Inc. as chief engineer, Commercial Div., according to the manufacturer's vice president and general manager, H. T. Hunt in a statement.

Pollock, formerly vice president and chief engineer in the company's Commercial Div., terminated a nine-year association in 1951 to head up his own agency in the Pacific northwest —C. W. Pollock Co., Seattle.

Just prior to his return to Drayer-Hanson, he was associated with Trion, Inc. as regional sales manager, the statement concluded.

Kelvinator Factory Sales Up 37% In '55

DETROIT — Kelvinator factory sales for the fiscal year ending Sept. 30 were 37% greater than the previous year, Walter Jeffrey, vice president in charge of sales, announced.

Laundry equipment, closing out the fiscal year with an all time monthly high during September, led all products with a 58% gain over 1954, Jeffrey said. Refrigerators, which accounted for the largest unit volume, were up 41%, and ranges up 39% for the year.

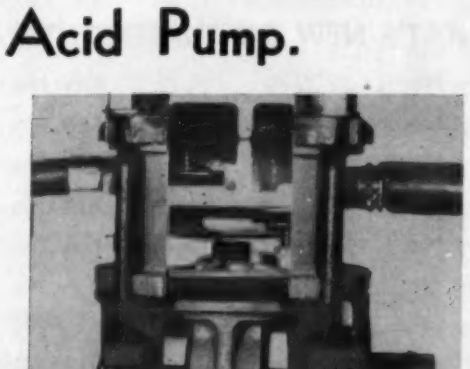
Henderson Opens Office

DALLAS—Henderson Refrigeration Co. recently established an office here, it was reported.

Located at 1734 S. Barry St., the new firm offers repair services.

LAST MONTH McQuay, Inc., manufacturer of refrigeration and air conditioning equipment, formally opened its new plant in Grenada, Miss. As the cornerstone unveiling ceremony was concluded, Roy J. Resch, president of McQuay, Inc. is shown shaking hands with Governor Hugh White. Left to right are: Attorney General J. P. Coleman, governor-elect of Mississippi; Roy J. Resch, Governor White, and H. Thomas Blake, executive vice president of McQuay, Inc., master of ceremonies at the program.

Build off-season service business with the ACE Diaphragm Descaling Acid Pump.



- All parts in contact with descaling compounds are acid resistant . . . Neoprene diaphragms . . . nickel-iron pumping chamber. Stainless steel valve parts.
- Entire unit is **portable** . . . pump and motor mounted on sturdy base with convenient carrying handles.
- Manufactured and guaranteed by the makers of the **complete** line of Ace cooling tower circulating pumps . . . ¼ H.P. to 7½ H.P.

Manufacturers representatives and distributor inquiries invited.

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Capitalizing on compact features of compressor, HARV-O-METIC Condensing Units are smallest, lightest, most efficient.

A modern miracle of compact design, the HARV-O-METIC Refrigeration Compressor provides the long-awaited key to the refrigeration industry's conquest of *inner* space. Seven years of research, development and testing have now produced a versatile high-capacity compressor whose compact features literally *create* added storage space without increasing cabinet size.

The HARV-O-METIC's entirely new roller-type compressor design produces a quiet, almost vibration-free operation with an extremely high volumetric efficiency. "Deep-Fin" aluminum shell construction reduces size and weight to a minimum while offering an extra large heat dissipating surface. Finally, the HARV-O-METIC's unique design permits its operation in *either* horizontal or vertical position, further increasing its versatility and space-saving advantages.

Check all the features of the HARV-O-METIC Compressor. Then see if you don't agree that it is a truly revolutionary development in refrigeration!

COMPRESSOR FEATURES • Revolutionary Roller-Type Compressor • "DEEP-FIN" Aluminum Shell • Constant Pressure Lubrication • Horizontal or Vertical Operation • 24-Month Standard Warranty

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See it Now at Booth No. 833

Twin-Twelve Designed for 'Problem Windows'

—KEY NO. E-1140—

DAYTON—The "Twin-Twelve," a manually reversible fan which fits those "problem windows" is the newest addition to the 1956 line of household electric fans manufactured by the Lau Blower Co. here.

The fan was designed to meet the needs of people who desire to move large or small amounts of air and who have extremely wide sash, casement, or awning windows, according to E. V. Sullivan, fan sales manager.

The Twin-Twelve will fit snugly into the hanger straps supplied with it for casement or awning-type windows. A flat strap plastic handle takes hardly any space, while still allowing the versatility of a portable electric fan. Reversing the fan is simply a matter of lifting it out of the hanger straps, rotating it 180 degrees and again hanging it.

Basically the Twin-Twelve consists of two individually motored 12-in. fans. Both fans are governed by a single three-speed switch that moves air at a gentle 1,770 c.f.m., or whisks it through at a rapid 3,120 c.f.m. The intermediate setting moves air at 2,700 c.f.m.

Slide Rule Lists Bendix Washer Parts

—KEY NO. E-1141—

CINCINNATI — Recently made available to laundry servicemen was a slide rule listing all Bendix washer replacement parts of the last 10 years, according to Crosley and Bendix Home Appliances Div., Avco Mfg. Corp.

On one side of the 13 by 5-in. new device are all parts numbers for Bendix tumble action washers. Agitator washer parts are on the other, the announcement said.

Across the top are serial designations of each washer model year and vertical slots list various parts.

When the top arrow indicator points to a specific model, the part numbers for each item used in that washer are indicated in the two vertical slots.

Certain transmission and pump group parts common to several models are indicated in lists to the right of the vertical slot of the slide rule, the company announcement said.

New 'Luxaire' Year-Round Unit Shown by Olsen

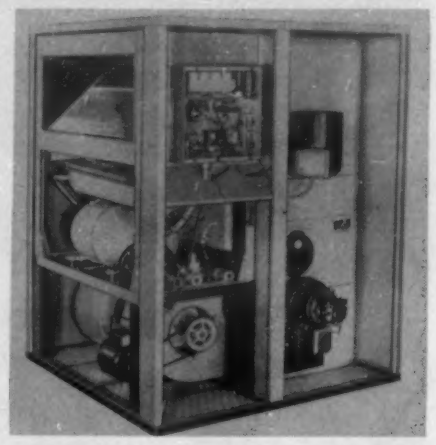
—KEY NO. E-1143—

ELYRIA, Ohio—A new "Luxaire" year-round air conditioning unit, which incorporates 5-ton capacity cooling system and 175,000 B.t.u. input heating system in the same cabinet, has been announced by The C. A. Olsen Mfg. Co.

The cooling system is charged and hermetically sealed at the factory. It is comprised of a 5-hp., gas-cooled, hermetic compressor; capillary tube metering device; fin-on-staggered-tube cooling coil; water-cooled, shell and fin tube compressor; and a modulating, automatic water control valve.

"The cooling coil is especially large in area to reduce resistance to the flow of cooling air to a minimum," the company said.

The new unit can be fired for heating with either the Luxaire gas or oil burner. Heating output at the bonnet is 140,000 B.t.u. with either type of fuel, it was stated. The pressure atomizing oil burner operates at a maximum firing rate of 1.25 per hr.

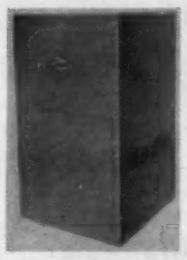


Cabinet dimensions are: 51 in. wide, 50 in. deep, and 68 in. high. The bottom or optional rear air intake opening is 18 in. by 47 in. and the air discharge opening is 18 in. by 36 in.

Residential Water Chiller Uses Hermetic Unit

—KEY NO. E-1144—

CHICAGO — A new residential water chiller equipped with a hermetic compressor has been placed on the market by Union Asbestos & Rubber Co., it was announced by W. K. Smith, sales manager of the company's Heating Div.



The chiller, to be known as the "Hydro-Pac," was designed for use with the company's "Dual Vector" year-round heating and cooling unit. Smith said it will be made available in 1, 2, and 3-hp. models.

Declaring that the new Unarco Hydro-Pac is unusual in that it is equipped with a hermetic compressor instead of the open type normally used, Smith added:

"We are also introducing a unique 'three tube within a tube' chiller, which has a much greater heat transfer rate than the normal arrangement."

Smith pointed out that the Hydro-Pac measures only 36 in. high and 21 in. square. He said it can be located in the utility room, kitchen, or even a closet.

The chiller arrangement, which is spirally wound, permitted the company to enclose the entire unit in the small package, he further added.

An electrical control panel is furnished as standard equipment and the Hydro-Pac can be used with either a water tower or attached to regular city water lines.

Large Opening Feature Of New Wrench

—KEY NO. E-1142—

DULUTH, Minn.—Diamond Calk Horseshoe Co. here announces that it has ready a new wrench for distribution to the refrigeration trade—"Number A18R Refrigeration Special."

This is an 8-in. adjustable wrench which has a larger opening as its special feature. It is primarily designed so that refrigeration servicemen can use a small 8-in. adjustable wrench on ½-in. brass flare nuts.

The wrench retails at $2.46 and is available through wholesalers of refrigeration and air conditioning equipment, the company further stated.

SEE IT AT BOOTH 323-4-5-6

Heat-X Hank will have several new products ready for you to see. One is the new Heat-X Heat Pump, first in the industry to incorporate extra-efficiency *Inner-Fin*® construction.

Other new products that will make your visit to the Heat-X booth time profitably spent:

- 'CCP' CAST COOLER PACKAGES.
- OIL SEPARATORS
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- INNER-FIN CONDENSERS
- CLEANABLE INNER-FIN CONDENSERS

There'll be cut-away models, operating units . . . even a soft drink dispenser. Stop in and look over the industry's most complete line of heat transfer products.

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for complete line of quality beverage coolers. Sizes range from 30" to 10' in length. New blower arrangement makes available much faster cooling than ever before possible in a dry beverage cooler.

Ice Cube Maker and stainless steel models are proving extremely successful, especially in hot and humid climates in this and many foreign countries.

We are interested only in distributors who can sell a quality product and who are looking for a permanent connection for their beverage cooler supply.

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For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

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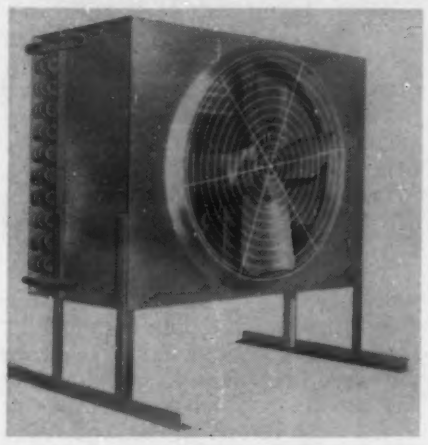
For more information about products advertised on this page use Information Center, page 54.

Halstead Shows New Air-Cooled Condensers



——KEY NO. E-1145——

PITTSBURGH — Halstead & Mitchell's new air-cooled condensers are designed for use with air conditioning systems when water is unavailable, water costs are high, or disposal of surplus water is a problem.

"Halstead & Mitchell remote air-cooled condensers are also used when it is desired to eliminate hot compressor rooms, or where an existing system requires extra condenser capacity," the company said.

"Many of these units are used when a combined air-and-water-cooled system is of value."

The company will sell a complete range of sizes from 2 through 20 tons, made to a new "Co-ordinated Design" principle. This involves coordinating these remote air-cooled units from the standpoints of capacity, performance, structural design, and appearance, it was explained by the company.

"The condenser cabinets are fabricated of heavy-gauge sheet steel, guarded by Halstead & Mitchell's exclusive Protected Steel treatment," the company further stated.

"This involves individual coatings of Vinsynite, Vinyl Zinc, and chlorinated rubber to provide a tough, flexible water barrier.

"Coils are designed to permit high air volume at low fan speeds, with uniform air distribution throughout the core. Units are available with both aluminum and copper fins.

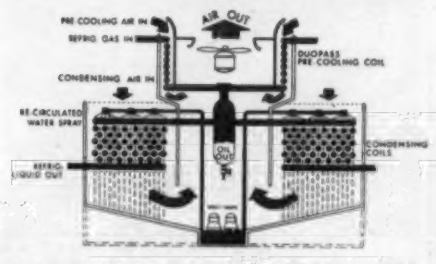
"In order to insure extremely quiet operation, Halstead & Mitchell uses deep pitch, four-bladed fans, which are designed to operate at low speeds.

"These air-cooled condensers may be either floor or ceiling mounted, and are designed for multiple circuit operation. Wind deflectors are available for outside applications, where necessary, to insure rated capacity with varying wind conditions," the manufacturer said.

——KEY NO. E-1147——

THESE newly-developed Dacor activated charcoal air purification filters, especially suited to use in room air coolers and forced air furnaces, will be shown for the first time at the Air Conditioning and Refrigeration Exposition in Atlantic City. Filters are being manufactured by Barnebey-Cheney Co., Columbus.

New Design Featured In Niagara Condenser



——KEY NO. E-1146——

NEW YORK CITY—A "radically new design," evaporative-type refrigerant condenser in capacities ranging up to 240-ton ammonia refrigeration was announced recently by Niagara Blower Co.

The refrigerant is condensed in two parallel mounted coils enclosing a central plenum under the fan section, it was further explained.

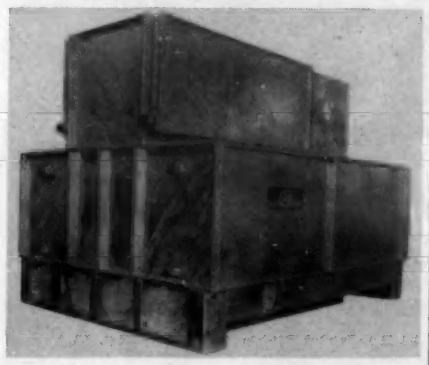
"Water sprays are arranged over the coils and the air enters from above, travels downward, and changes direction to enter the plenum, at which point the entrained water is eliminated," the company said. "The air then moves up and through propeller fans.

"The hot gas is sub-cooled before condensation by first passing through duo-pass pre-cooling coils mounted beside the fan section. A dry air stream crosses this coil, removing the superheat.

"Any oil vapor present is liquefied during this process and removed by the 'Oilout' separator in the gas line ahead of the condensing coils.

"This precooling also prevents the high temperature deposit of hard scale on the condensing coils," it was stated.

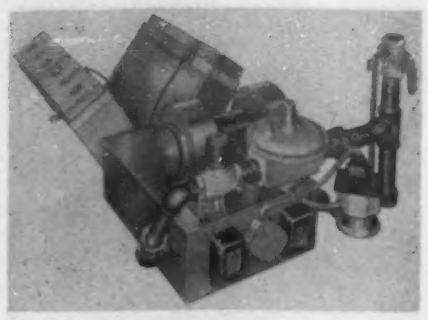
"The only water consumed is that evaporated. Unrestricted down-draft air instantly removes the excess water from the condensing coils. The excess water is recirculated.



"All sections of the condenser are encased in separately removable panels for complete accessibility for painting or to allow the coils to be cleaned from any side. Removing a single panel gives entrance to the central plenum and puts all interior parts within reach."

There are four sizes: 90, 120, 180, and 240 tons.

The ratings are for ammonia; the condensers are also applicable to "Freon."



Gas Conversion Burner For Industrial Use

——KEY NO. E-1148——

OMAHA, Neb. — A new model forced combustion gas conversion burner, the Hastings "Heatwell Adjusto 'V,'" designed for larger commercial and industrial installation has been announced by Hastings Air Control, Inc. here.

Capacities range from 350,000 to 4,400,000 B.t.u. input, with 16 different size units. This improved gas conversion burner features adjustable flame angle conforming to boiler requirements, and its improved burner design provides faster heat transfer, the company claims.

Refractory brick is included as part of the burner head assembly. Controlled and positive air and gas mixture gives uniform combustion under all draft conditions. Positive gas purge after each burner cycle is provided.

Portable Air Filter Removes Gases, Odors

——KEY NO. E-1149——

CHICAGO—"Smog-Free," a new portable air filter that is claimed to remove all known gases and odors from the air, has been developed by Radex Corp., Chicago electronics manufacturer.

Smog-Free performs its filtering action through the use of an activated carbon filter. The unit is designed for residential and commercial use and requires no installation other than plugging into a wall socket, the manufacturer states.

According to Richard R. Cook, president of Radex, Smog-Free can remove odors and gases, as well as other contaminants such as dust, smoke, and pollen from the air of an average living room within 20 minutes. One or more filtering units can function just as effectively in commercial establishments, the manufacturer further indicates.

The principle of the Smog-Free unit is basically the same as that employed in the wartime gas mask.

"Smog-Free draws contaminated air through a 2-in. aluminum filter located on the backside of the unit's cabinet," it was explained.

"As the air filters through the fine screen, dirt and dust particles are removed. The air then passes through the activated carbon filter which absorbs all gases, odors, and other vapor-like impurities.

"While the blower is on, circulation and filtration of air is continuous.

"The aluminum filter can be removed easily for periodic cleaning usually after two to four months of operation. The activated carbon filter requires no cleaning; it is used until completely saturated normally after about four months of use—then it is replaced by a new one. Replacement filters will be available at nominal cost."

Smog-Free is offered in two sizes.

TAME TOUGH Refrigeration PROBLEMS with "JOB TAILORED"

SAVE money with DEAN "job tailored" cold plates ...made *exactly* in the size you need—in zinc metalized steel, stainless steel and other metals—in cylinders, U's, angles, tanks, etc. Also in plates for baudelot-type coolers.

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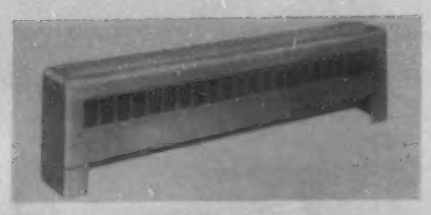
WILL DRAIN 4 INCHES FROM FLOOR

AVAILABLE IN
110 V. OR 220 V. A.C.
10 FT., 15 FT. OR 20 FT. HEAD

SAMPLE SHIPPED PREPAID UPON REQUEST OF JOBBER

Convectors Designed for Picture Windows

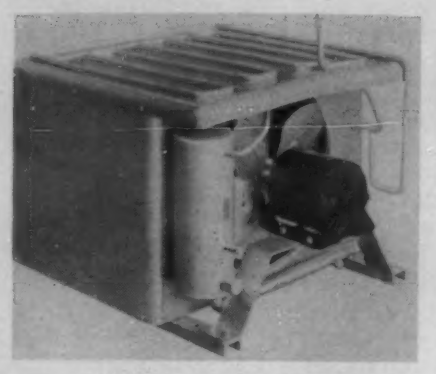


—KEY NO. E-11410—

CHICAGO—A new line of picture window convectors has been recently developed by the C. A. Dunham Co. here. These convectors heat and block cold down drafts around picture windows.

Only 12 in. high, these units can be easily floor mounted, partially or completely recessed below picture windows. Convectors have rounded corners and edges for safety and appearance. Heavy-gauge steel units have front panels braced with stiffeners. Available in lengths up to 112 in.

Heating element consists of aluminum fins and copper tubes silver brazed into cast bronze header. Tubes are expanded into fins to assure tight mechanical bond, fast heat transfer, and life-long efficiency. Knob or chain-operated dampers are available as optional equipment.



—KEY NO. E-11411—

RECOLD "VAPOMATIC" defrosting is being introduced at the Show in Atlantic City. Heat of compression is said to be used in a new way to accomplish fast, foolproof defrosting, according to Refrigeration Engineering, Inc., Los Angeles. Vapomatic defrosting applies heat continuously during defrost cycle without use of external heat sources.

—KEY NO. E-11412—

SHOWN HERE is Gibson's Market Master refrigerator for 1955. The newest model, designed to hold 30% more fresh food, because the conventional freezer compartment has been removed, includes a cheese keeper, "Buttr'y," egg racks, and five plastic food containers on their own specially designed shelf. The "Swing'r Shelf" holds milk bottles and other large containers. Shelves are adjustable for more storage flexibility. The Market Master refrigerator was designed especially for freezer owners.

J-E Announces Floating Diaphragm Solenoid

—KEY NO. E-11413—

ST. LOUIS—Jackes-Evans Mfg. Co. recently announced a new "floating" diaphragm solenoid valve.

In these units the synthetic diaphragm "floats" free allowing lower pressure differentials in fluid flow. There are no metal-to-metal contacts to wear, the manufacturer stated, and valves are guaranteed for 18 months.

The valves are usable for air conditioning, refrigeration, hot water heating, laundry equipment, and dishwashers for the control of water, brine, air, light oils, industrial gas, "Freon-12," "Freon-22," and other non-corrosive fluids at temperatures from 0° to 225° F., the manufacturer further claims.

Available in a wide variety of sizes for any pressure differential between 1 and 250 p.s.i., the solenoid valves have port openings ranging from 7/64 in. to 1½ in. diameter.

There is a choice of screw, solder, or flare connections, the firm said.

Coil assemblies for all valves are the same size and are interchangeable.

They are available with or without the manual operator that opens an auxiliary pilot port within the valve and allows systems pressures to actuate the diaphragm in a normal manner in event of electrical failure, the manufacturer declared.

Forston Adds Compact Auto Air Conditioner

—KEY NO. E-11414—

HOUSTON, Texas—Forston Co. here recently added a compact automotive air conditioner to its line, it was announced here recently.

Adaptable for cab or underdash mounting, Forston Jr. is claimed to eliminate "freezing-up" problems.

Other features are thermostat control, 3-speed fan switch, adjustable directional air flow louvers, and magnetic clutch, the company said.

'Kool'Kloset' Available In 3 Arrangements

—KEY NO. E-11415—

LA CROSSE, Wis.—La Crosse Cooler Co. has announced that its "Kool'Kloset" combination refrigerators are now available in three distinctive arrangements and will now offer considerably more versatility.

Two additional coil arrangements have been developed for use with this equipment.

"One of these is equipped with a coil having a high humidity factor, not only excellent for egg refrigeration but also appropriate for miscellaneous produce, meats, berries, etc., as well," the company said.

"The other is intended for more heavy usage and primarily in those cases where it is expected that the product entering will actually be cooled down."

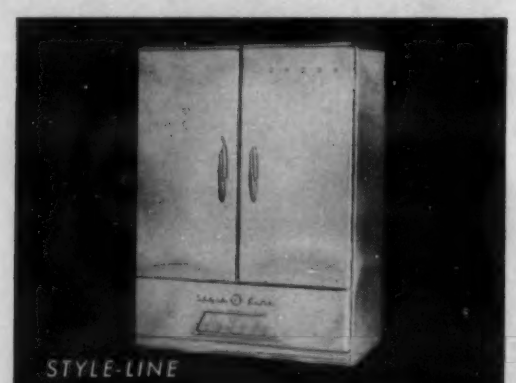
The equipment is suitable for use in hotels, schools, drive-ins, farms, and many other places, it was pointed out.

La Crosse said the models include specially treated metals for greater life expectance and rugged inside release hardware to preclude the possibility of any accidents.

Shipment is made on a "knocked-down" basis "so that the dealer will realize minimum freight costs."

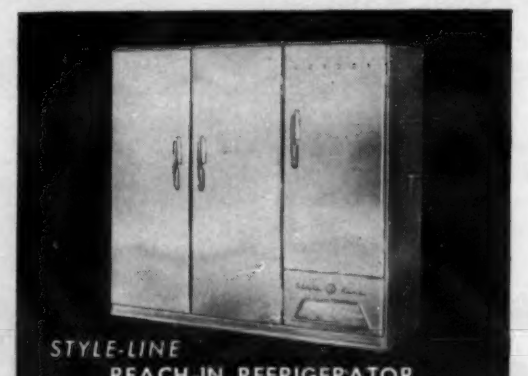
the Move Is to JORDON

And it's the winning move! For the new 1956 Jordon line features all the world-famous Jordon engineering advances, housed in the most beautiful exterior designs in the industry! Jordon dependability plus Jordon beauty are combined here to meet every customer's requirements . . . and help you make every sale!



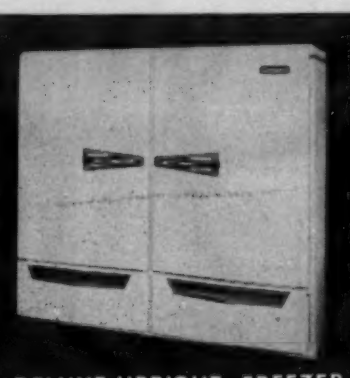
STYLE-LINE REACH-IN REFRIGERATOR
Model SJ-20 Stainless Steel — Also available in White Enamel— Model WJ-20

STYLE-LINE REACH-IN REFRIGERATOR
Model SJ-62 Stainless Steel — Also available in White Enamel— Model WJ-62



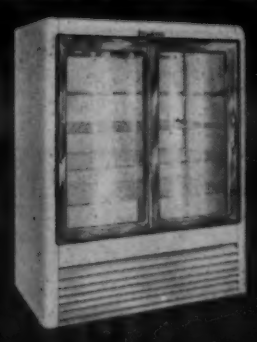
STYLE-LINE REACH-IN REFRIGERATOR
Model SJ-45 Stainless Steel — Also available in White Enamel— Model WJ-45

BEVERAGE COOLER
Model BS-6
Stainless Steel with roll-back disappearing doors.



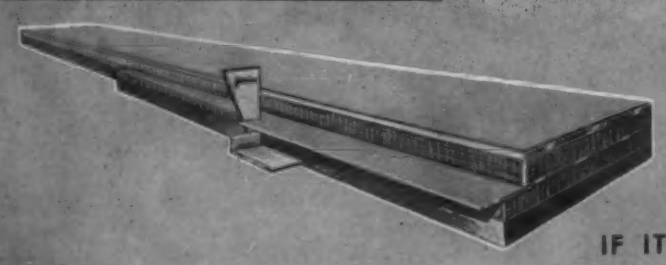
DELUXE UPRIGHT FREEZER
Model CF-42

COMBINATION REFRIGERATOR-FREEZER
Model 14/6



REFRIGERATOR WALL CASE
Model S-4½G

Booth #429 Center Aisle



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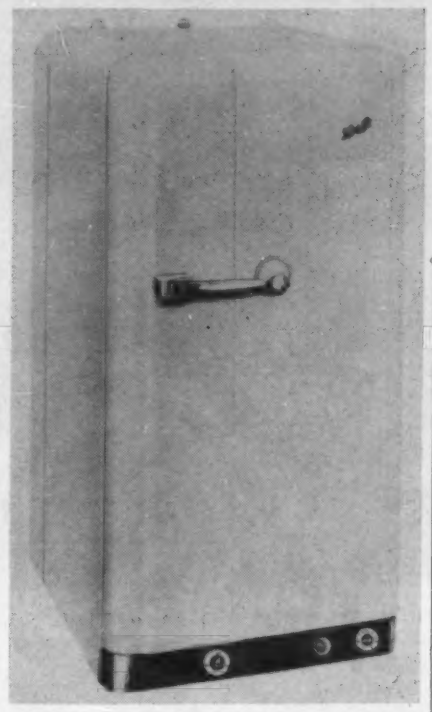
IF IT'S JORDON, IT'S RELIABLE REFRIGERATION

For more information about products advertised on this page use Information Center, page 54.

Butane-Electric Refrigerator Announced

—KEY NO. E-11416—



LOS ANGELES — The "Krefft Convertible," a new refrigerator that operates on either butane or electricity, has been announced by Norman H. Lee, president of Norco Sales Corp. here, sole U. S. distributor.

CONVERSION QUICK and SIMPLE
Remove Exhaust Tube
Insert plug-in electric element. Fold-back mirror simplifies checking of flame for butane operation.

"The outstanding feature of the Convertible is its quick convertibility from butane to electricity . . . a switch-over that takes less than 10 seconds," the company said. "To accomplish this conversion, it is necessary only to remove the butane exhaust tube from a port at the top of the refrigerator and insert the electric plug-in element.

"The easy convertibility feature will appeal to transients such as trailer and boating people who can now operate on electricity while at the trailer park or dock, then convert quickly to butane for traveling and off-the-beaten-path stopovers.

"Another new development on the Convertible is a panel of fully automatic controls located in an easily accessible position at the front of the refrigerator.

"It consists of a butane temperature control, a safety control button, and the automatic ignition switch. Ignition of the gas is accomplished by simply turning the automatic ignition switch; no matches are needed. A kerosene-electric model of the Convertible refrigerator is also available.

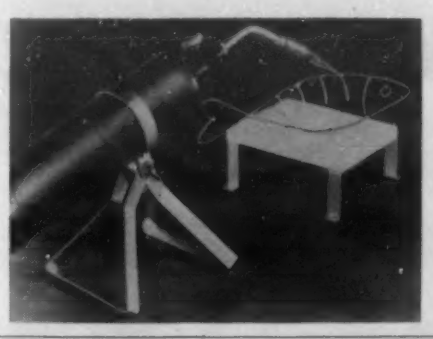
"The refrigeration unit of the Convertible operates silently, having no moving parts, and both gas and electrical consumption are extremely low on both the 2.8 and 3.9-cu. ft. models.

"The electrical system operates on either a.c. or d.c. and carries the approval of the Los Angeles Department of Safety. The automatic safety control is approved by the AGA and the entire unit is covered by a written warranty."

The inside of the Convertible features vitreous glass lining, four full-width shelves, and two door shelves. Vegetable crisper, drip tray, and three ice cube trays are standard equipment.

All-Angle Holder Is For Propane Torches

—KEY NO. E-11419—



HARTFORD, Conn.—A new all-angle "Torcholder" accessory for propane torches was recently announced by Adams Products Co. here.

Claimed by the manufacturer to be safe, the unit holds a torch in any position. It is adjustable by moving either up or down without loosening the wing nut. The torch also may be rotated in the holder. A soldering table comes with it, the company stated.

Able to fit all regular makes of torches, the holder has ½ in. heat-resistant Marinite top and folds for storage, the manufacturer reported.

F.T.S. Develops Inspection Light

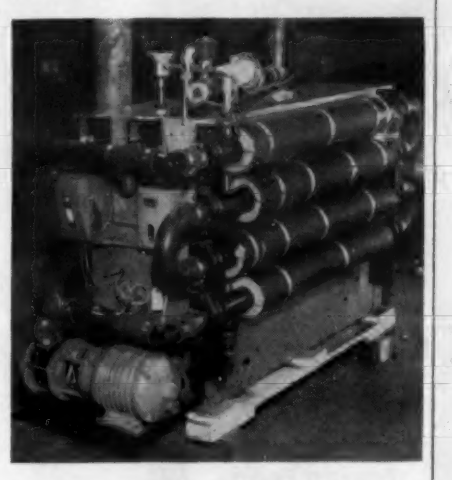
—KEY NO. E-11417—

CAMDEN, N. J.—A multi-purpose inspection light, named "Syte-Ayde," said to permit close examination of otherwise inaccessible or hard-to-see areas is now available from F.T.S. Corp. here, the manufacturer announced.

Light for the Syte-Ayde comes from a pen-sized flashlight and bends light around corners by means of a combination light-focusing rod and magnifying mirror.

Applications of the light are widespread, the manufacturer said. Among the users are welders, molders, inspectors, maintenance men, etc.

The kit contains a flashlight with lock-switch, two batteries and bulb, two straight-formed and two angle-formed lucite rods, three detachable angle-form mirrors rated at 1½ power. A plastic pocket-size case holds all items.

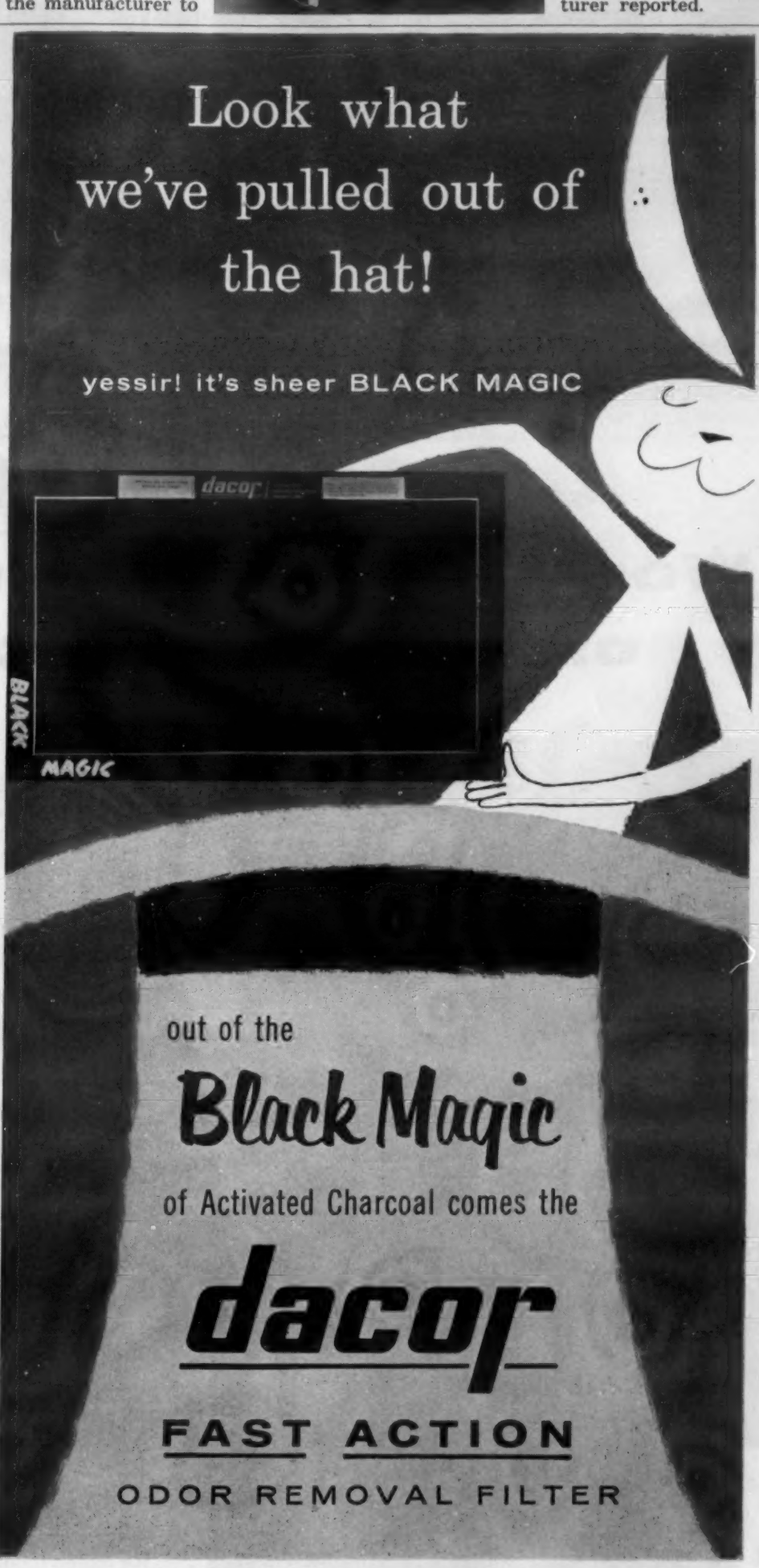


Buck Unit Cools Anodizing Solution

—KEY NO. E-11418—

ESSEX FALLS, N. J.—A complete refrigeration unit for cooling sulphuric acid anodizing solution was announced recently by Carl Buck & Associates here.

Units are available in all sizes for any solution cooling job and can be furnished with necessary controls to hold solutions at any desired temperature. Pump is of Camac Furacam plastic and heat transfer tubes of Karbate.



The idea of air recovery through odor removal is spreading rapidly in the air-conditioning industry. Several large manufacturers are now including this new filter in their window units. It's an excellent sales feature, answers the chief complaint against window units, and makes them more efficient. It works magic for sales!

★ Low cost
★ Low resistance
★ Disposable filter
★ Only ordorless odor remover

See the remarkable dacor filter at the Air Conditioning Exposition, Booth 912-A, or write for literature and sample material.

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Tell me more about filters using the Black Magic of Activated Charcoal.
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WORLD'S LARGEST PRODUCER OF ODOR REMOVAL CHARCOALS

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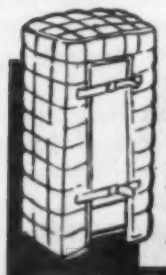

Air conditioning and refrigeration units are handled safely and efficiently — go to work unmarred — with ELKAY Moving Pads and Covers, Appliance Trucks, Dollies, Straps and Casters.
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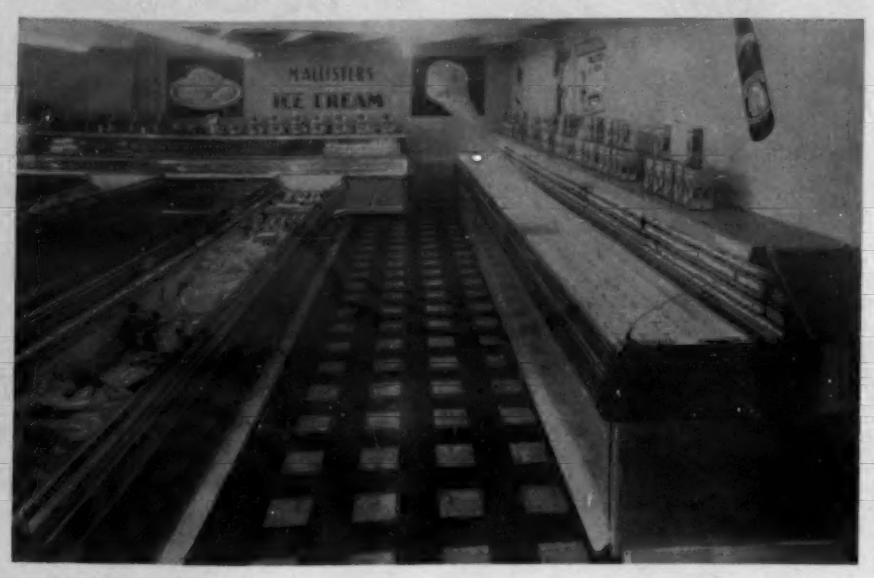
'Fabulous' Market Has 221 Lineal Ft. of Low Temp Island Display

OVER-ALL VIEW of McAllister store in Warren, Ohio shows six rows of island display. Frozen foods are alternated with frozen meats—something new in low temperature display.



McALLISTER'S OWN ICE CREAM is featured in the market with 55 ft. of display along two walls. A total of 300 lin. ft. of McCray self-service equipment is installed in the store.

Ohio Firm Pioneers In Novel Method of Wax Coating Meats

WARREN, Ohio—Early this fall McAllister Dairy Farms, Inc. opened a "fabulous" new market on the outskirts of Warren, Ohio.

The store is unique, and lays claim to the the "fabulous" title, for several reasons. It has more lineal feet (221) of low temperature island display for frozen merchandise than any other market in the world. These McCray cases, in 8 and 11-ft. lengths, are finished in pastel green and have shopping fronts on both sides. They are installed in six continuous islands with ample shopping space all around each line of cases.

One 38-ft. island with a capacity of 83 cu. ft. is completely devoted to the display of frozen baked goods. The other five islands (183 ft.) with a capacity of 556 cu. ft. are devoted to the display of 12,000 lbs. of frozen meats, (fresh, luncheon and smoked) and 3,000 lbs. of frozen foods.

FROZEN FOOD AND FROZEN MEATS ALTERNATED

The display cases are stocked alternately with a section of frozen meat and then one of frozen food—something completely new in low temperature display.

McAllister is also pioneering in a new method of packaging meat products. Meat is cut into portions for retail sale and then quick frozen at about -30°. Before packaging each piece is weighed, identified and priced, and then run through a machine that completely envelops each cut in a "Plastic-Wax"—a "skin tight" coating of wax that hermetically seals in all the bloom, flavor and moisture, and original freshness of the meat.

Coated cuts are then returned to the freezer for later distribution in the store or to the 32 affiliated stores that are handling the McAllister products. Two qualities of meat are handled with two price structures, but each individual cut carries a U. S. Government Inspected label.

MARKETS OWN BRAND OF ICE CREAM

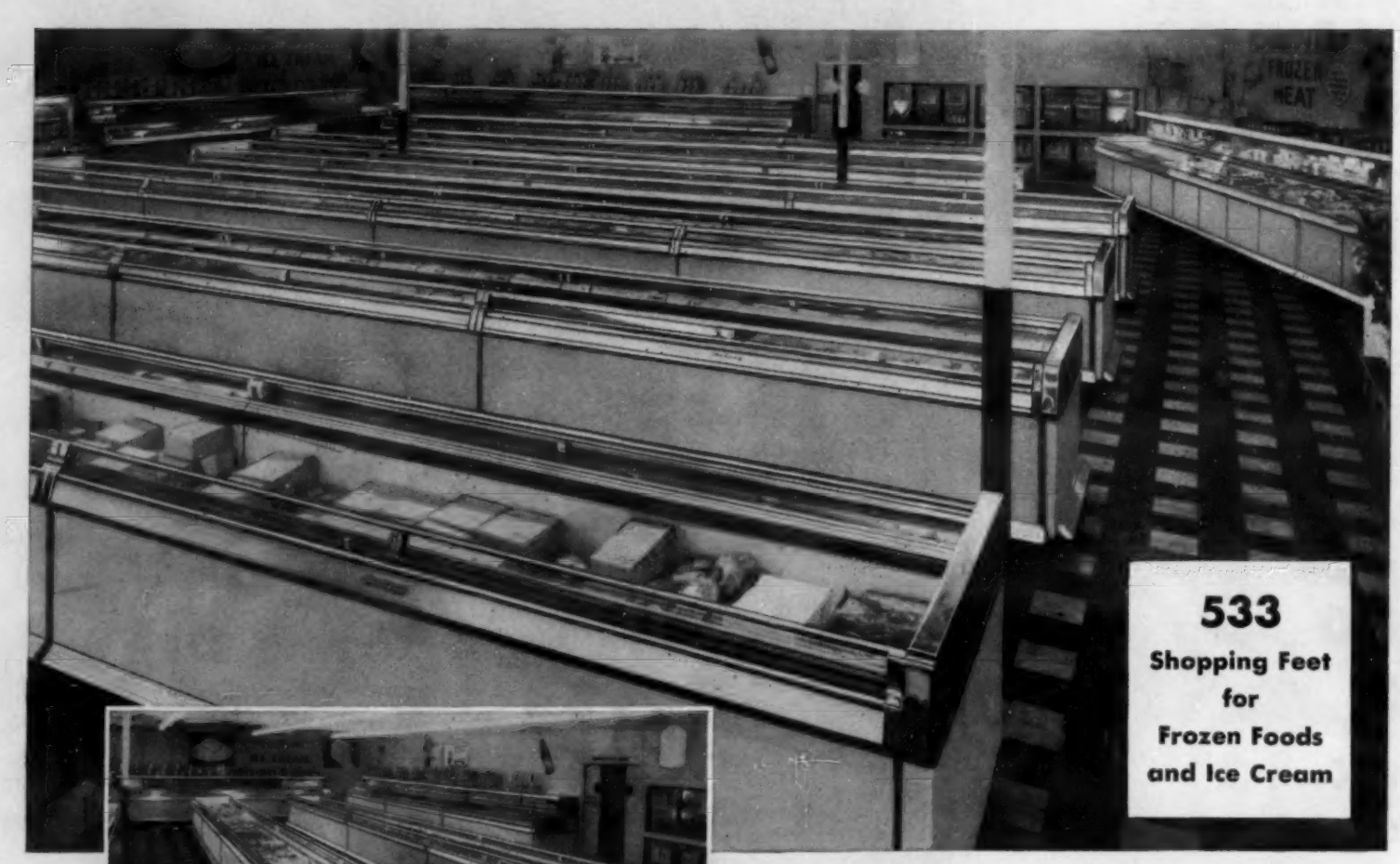
The McAllister Dairy Farms also make and package their own brand of ice cream. In their new store in Warren they have 55 ft. of low temperature McCray cases with a capacity of 8,160 pts. for the display of ice cream.

They also have 33 ft. of double-duty McCray cases for the display and storage of dairy products and luncheon meats. All of these cases have low, lighted superstructures for the display of related items and are finished in pastel green.

A total of 309 lin. ft. of McCray self-service equipment is installed, 276 ft. of which is automatic electric defrost low temperature devoted to the display of frozen meats, frozen foods, frozen bakery goods, and ice cream.

Again it's **McCRAY** *in the*

World's Largest Installation of Frozen Food Cases



533
Shopping Feet for Frozen Foods and Ice Cream

Beautiful McCray Island Cases occupy center of McAllister store

McCray Cases keep huge stocks of ice cream in perfect condition

In the new McAllister Market, Warren, Ohio, McCray cases provides 533 lineal shopping feet for frozen foods alone, plus 33 feet for dairy and related products. Quality, appearance, easy shopping and big capacity are all vital in the McAllister merchandising plan. McCray cases fit these requirements as closely as the McAllister package of "Plastic Wax" fits their fine meats.

Call the McCray man, or write for literature—there's so much that's new in the McCray line!

Salesrooms in All Principal Cities • See Classified Phone Book

McCray Refrigerator Company, Inc.
1101 McCray Court, Kendallville, Indiana

McCray
KOLDFLO

65 Years of Leadership in Building DEPENDABLE Commercial Refrigerators and Display Cases

For more information about products advertised on this page use Information Center, page 54.

Sound Baffling System Gives Library Noiseless Packaged Air Conditioning

NASHVILLE, Tenn. — This year summer-term students attending Peabody college here enjoyed the comfort and convenience of an air conditioned library—chiefly because of the fact that an unusual demonstration changed an opinion held by school officials.

Several months ago, the Peabody administration, recognizing the need of a comfortable library conducive to warm-month study, formulated plans calling for air conditioning of the building. A number of air conditioning contractors were consulted for ideas as to how the job could be handled and for cost figures.

Stipulation: No Packaged Units, No Ductwork

The school group made one stipulation: "We don't want packaged air conditioners in the library because they are too noisy and we don't want exposed ductwork in the study area."

On this basis, the contractors unanimously recommended a chilled water system employing individual air handling units. For Peabody officials, however, there were two disadvantages to the proposed chilled water system—cost and time.

Not only was the estimated cost beyond the school's budget range, but the best delivery promise on the necessary equipment indicated that the system could not possibly have been installed in time for summer use. It was decided, therefore, to abandon the project temporarily.

Dealer Proposes Alternative

At this point, Central Air Conditioning & Heating, Nashville Airtemp dealer, proposed an unusual alternative. Central asked Peabody officials; "How would you like to have your air conditioning installed in time for the opening of summer school and at the same time save enough money over the original estimate to air condition one of your other buildings?" The reply was a skeptical "How?"

Alan Anderson, Central engineer, suggested that with simple sound baffling a system of packaged unit could be installed in the library—without ductwork—that would be as quiet in operation as a chilled water system.

Dr. Henry Hill, president of Peabody, who had for several semesters been trying to lecture in a classroom served by a packaged air conditioner, was not convinced that the noise problem could be solved so easily. He expressed a desire to observe actual proof.

To enable him to do so, Central requested permission to quiet the unit in question with the understanding that if it could be made satisfactory, a packaged system would be considered for the library. Peabody officials agreed to the proposal.

Sound Baffling Built Around Unit

Sound baffling was built around the old unit installed in the classroom. Work completed, it was turned on and Dr. Hill was invited to come in to hear it operate.

Upon entering the room Dr. Hill asked; "When are you going to turn on the air conditioner?" When he was told the unit was already in operation he couldn't believe it.

"The demonstration was so dramatic and convincing that the school authorized Central to proceed at once with the installation of a packaged system in the library," it was noted.

The new library system consists of nine 3-ton and nine 5-ton Airtemp water-cooled packaged air conditioners. In the main reading rooms, the units are situated in corner areas. Grilles are located just above the conditioners which are enclosed in sound baffle closets.

In the smaller rooms of the building a similar system (with sound baffle closets) is used with the exception that there is an occasional short run of ductwork where one conditioner serves more than one office.

Book Storage Gets Waterless Conditioner

A 5-hp. waterless conditioner was selected for the library's book storage area because the section would, for dehumidification and moisture control, require air conditioning during periods when the main system would not be needed and perhaps after the building's cooling tower has been drained.

Coleman Appoints Hughes Distributor

WICHITA, Kan. — Appointment of Hughes & Co., wholesale plumbing and heating supply firm, Spokane, Wash., as a distributor of "Blend-Air" heating and air conditioning equipment has been announced by C. L. Burrows, sales vice president of Coleman Co., Inc.

The Spokane firm will serve Coleman dealers in eastern Washington, northern Idaho, and western Montana. Don Disotell, manager of the distributor's warm air heating department, will be in charge.

HERE IS A BIG MONEY-SAVER

The New Low Cost

Portable Hastings

"HOIST-IT"

2 MEN
Can Easily and Safely
Raise 4,000 Lbs.
Up to 18 ft.
In One Hour

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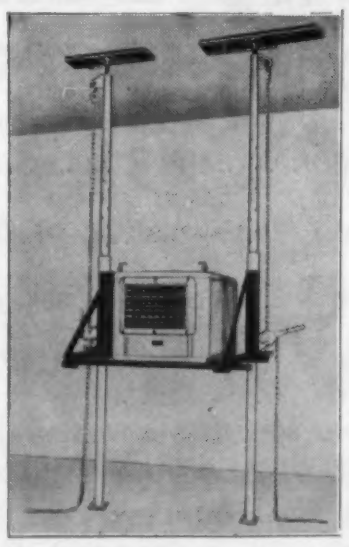
Ideal for
All Types of
Equipment

•



Write for Information and Price

HASTINGS AIR CONTROL, INC.

3215 Leavenworth, Dept. AC-112, Omaha, Nebr.

we are willing to bet

that 9 out of 10 cooling water systems have some scale in them!

Enough scale to cut heat exchange efficiency, and maybe cause plenty of trouble next summer when their maximum capacity is needed.

We are also willing to bet that we can show you how to avoid shutdowns next season. Two of Calgon's BIG 3 water treatment products will *get* your system in first class shape and *keep* you out of trouble.

1. CALGON* SCALE REMOVER

CALGON SCALE REMOVER makes it easy to clean up a system completely. Excellent corrosion inhibitor protects system while in use. Special built-in pH color indicator shows exactly how much of scale remover to use, and tells when system is clean. CALGON SCALE REMOVER provides the safest way to get the system clean.

2. MICROMET* PLATES

Once the system is clean, *keep* it clean by using MICROMET PLATES. A single charge lasts up to six months, and the inexpensive glass mesh feeding bag eliminates costly feeding equipment. You merely hang the bags in the system. MICROMET PLATES are recommended by many equipment manufacturers. If you have algae or slime growth troubles in your cooling tower, kill them with safe, effective, non-corrosive CALGON ALGAECIDE.

See your refrigeration wholesaler for Calgon's Big Three

calgon, inc.

A SUBSIDIARY OF HAGAN CORPORATION
HAGAN BUILDING, PITTSBURGH 30, PA.

*T. M. Reg. U. S. Pat. Off.

What Happened In Residential Air Conditioning In 1955:

What happened in the residential air conditioning field during 1955 in the active market of Cincinnati?

This survey made by AIR CONDITIONING & REFRIGERATION NEWS presents the picture as it appears to 27 Cincinnati contractors and five distributors active in the business this year, bringing out the gains and changes which have occurred since 1954.

The first such survey ever attempted was made by the NEWS in Wichita a year ago to determine what was actually taking place. Those results appeared in the Oct. 18, 1954 issue of the NEWS.

Results of the second Wichita survey appeared in the Nov. 21, 1955 issue of the NEWS.

Certain trends, like that to air-cooled units, and increasing interest of the speculative home builder, are readily apparent in the 1955 survey.

By C. Dale Mericle

CINCINNATI — Residential air conditioning installations here are running 50% better than last year.

A survey of Cincinnati contractors and distributors made by AIR CONDITIONING & REFRIGERATION NEWS reveals a total of 835 air conditioning systems installed in Cincinnati area homes during 1955 up to mid-November.

This is believed to represent better than 90% of the residential installations here.

A similar survey of 1954 installations (and published in the Jan. 24, 1955, issue of the NEWS) showed a total of 567 residential jobs for that year.

(The 1954 total of 497 which appears in the accompanying table does not include 70 installations made last year by several contractors who have not put in any residential systems so far this year. In one or two instances contractors active in the residential field last year have switched to a wholesale distributor setup for this market.)

Residential Air Conditioning In Cincinnati In 1955

Contractor	1954 Total Units	1955 Units To Date	–New Owner	Homes– Builder	Existing Homes	Year-Round Systems	"Add-on" Units	Air Cooled	Water Cooled	With Cooling Tower	Sheet Metal Shop
1	60	117	....	....	117	23	94	94	23	11	No
2	80	100	40	40	20	85	15	60	40	35	Yes
3	20	85	....	85	....	85	....	....	85	....	No
4	40	60	15	30	15	47	13	50	10	5	Yes
5	26	42	10	31	1	42	....	39	3	1	No
6	21	40	8	....	32	10	30	....	40	38	Yes
7	10	27	23	2	2	25	2	27	....	....	No
8	8	25	5	18	2	25	....	....	25	25	Yes
9	30	18	....	2	16	4	14	18	....	....	Yes
10	16	17	2	2	13	17	....	15	2	2	Yes
11	....	17	12	....	5	12	5	4	13	13	No
12	9	15	10	....	5	13	2	1	14	7	Yes
13	4	15	4	1	10	9	6	7	8	1	Yes
14	2	10	....	....	10	....	10	5	5	3	No
15	6	7	1	6	....	7	....	7	....	....	Yes
16	5	6	2	....	4	3	3	3	3	1	No
17	3	6	....	....	6	2	4	6	....	....	No
18	2	5	....	....	5	2	3	5	....	....	No
19	4	6	....	3	3	....	6	....	6	6	No
20	3	4	4	....	....	4	....	1	3	....	Yes
21	1	4	1	....	3	1	3	4	....	....	No
22	3	3	....	....	3	1	2	....	3	3	Yes
23	....	3	....	....	3	....	3	3	....	....	Yes
24	3	2	....	....	2	....	2	....	2	2	No
25	4	2	2	....	....	....	2	....	2	....	No
26	....	1	1	....	....	1	....	1	....	....	Yes
27	3	1	....	....	1	1	....	....	1	....	Yes
Distributor											
A	5	45	12	8	25	20	25	42	3	3	....
B	74	45	30	7	8	45	....	35	10	....	....
C	18	35	....	....	....	....	....	....	....	....	....
D	8	32	10	6	16	24	8	32	....	....	....
E	29	40	8	....	32	8	32	18	22	6	....
Total	497*	835	200	241	359	516	284	477	323	162	

***1954 installations actually totaled at least 567. Explanation for this apparent discrepancy is given in accompanying article.**

27 Contractors, 5 Distributors Included

Twenty-seven contractors and five distributors are represented in the 1955 Cincinnati survey. There were 35 contractors and five distributors listed in the 1954 report.

Included in the latest tabulation are three contractors who made no residential installations last year.

Some definite trends can be noted in the Cincinnati figures. Air-cooled units, for example, now dominate the picture. Considerably more year-round installations were made than "add-on" units for cooling only. While existing homes still offer a bigger market, apparently, than new homes, installations in the latter gained considerably over 1954 in both the "owner" and "builder" classifications.

The accompanying table shows that 200 systems were installed in new homes at the choice of the owner, and 241 went in at the choice of the speculative builder.

359 Installations In Existing Homes

Existing homes accounted for 359 installations.

(It should be noted that Distributor C reported his dealers made 35 installations but was unable to give any breakdown of this total. It is unlikely, though, that these figures would materially affect the various totals shown.)

The previously published 1954 summary showed that of the 567 installations reported there, 146 went into new homes at the choice of the owner, 190 at the choice of the builder, and 231 into existing homes.

Builders Showing Much More Interest in Units

Builders are showing considerably more interest in air conditioning now, some Cincinnati contractors commented.

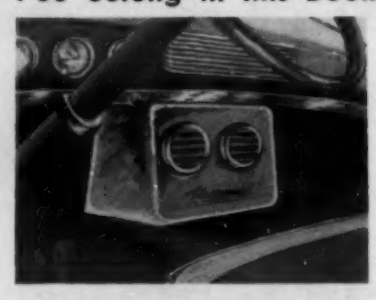
One firm also said that it had sold 50 cooling cabinets to a builder and installed them "for practically cost." The builder feels this aid for future air conditioning helps sell the homes, and the contractor, of course, figures he'll get the jobs when the owners decide to add air conditioning.

(Concluded on next page)

Don't Miss the Boat

on Automotive air conditioner PROFITS

You belong in this Booming business with



the Thermal unit

Sales volume for automotive air conditioning has skyrocketed. Reason? Everybody wants one. And *Thermal* gives the motorist every comfort and convenience experience has been able to engineer into a unit.

- Compact under dash installation saves valuable trunk space. Beautiful new plastic cabinet.
- New 4-cylinder Lehigh V-Type compressor provides maximum cooling — even at idling speeds.
- New 10-inch fan — more cool air circulation through entire car. Station Wagons no exception.
- New round diffusers adjust air flow in any direction.
- New foolproof control system. No clutch necessary.
- All installation parts fit — unit has been installed in 55 minutes.

Thousands in use. Install *Thermal* and forget it.

Get aboard now for the full selling season.

REFRIGERATION WHOLESALERS — Write, wire or phone for the complete story of your place in the automobile air conditioning picture.

REFRIGERATION DEALERS — See your air conditioning and refrigeration wholesaler.

THERMAL AGENCY
National Sales Agents
THERMAL BLDG. • 1515 DALLAS • HOUSTON, TEXAS

The Industry Demanded It
FRASER & JOHNSTON Did It

NOW A MODERN GAS-FIRED FURNACE WITH AIR-CONDITIONING COILS TO MATCH!

SAVE TIME—LABOR—MONEY

UPFLOW—DOWNFLOW—HORIZONTAL TYPES

ATTRACTIVE OPPORTUNITY FOR MANUFACTURER'S REPRESENTATIVES— DISTRIBUTORS—MAJOR CONTRACTORS

A COMPLETE LINE

FRASER & JOHNSTON CO.
AIR-CONDITIONING DIVISION
1900 17TH ST.
SAN FRANCISCO, CALIF.

For more information about products advertised on this page use Information Center, page 54.

835 Cincinnati Home Installations In First 10 Months Is 268 More than '54

(Concluded from preceding page)

A break-down between year-round systems and "add-on" units is also given in the accompanying table. This shows 516 year-round installations compared with 284 "add-on" jobs.

No attempt was made to distinguish between year-round systems housed in a single cabinet and those jobs where separate cabinets housing heating and cooling units were installed.

Add-On Figures Almost Impossible To Get

Likewise, the term "add-on" is used (perhaps somewhat loosely) to describe installations of cooling units only. Previous attempts have shown it to be virtually impossible to obtain any figures from the field distinguishing between complete cooling packages tied into an existing duct system and "add-on" refrigeration cycles which use the existing furnace blower and filter arrangement.

It is interesting to note that the 516 year-round installations amount to 75 more than the 441 total of new homes air conditioned. This means that the heating plants in 75 existing homes were replaced with year-round air conditioning systems.

No breakdown of year-round vs. "add-on" systems was given in the 1954 survey.

Strong Trend to Air-Cooled Units

The strong trend to air-cooled units is readily apparent in the 1955 installations. There were 477 air-cooled jobs compared with 323 water-cooled systems.

Only 106 air-cooled units were reported in 1954, compared with 461 water-cooled systems.

Of the 323 water-cooled systems installed to date in 1955, 162 employ cooling towers. This is a much higher percentage than last year when an estimated 100 towers were installed although water-cooled systems numbered 461.

Also listed in the table is a notation as to whether the contractor has a sheet metal shop or not. This shows that 14 of the 27 contractors individually listed do have a sheet metal shop.

But this doesn't seem to have any bearing on the number of residential air conditioning installations the Cincinnati contractors make. Considering the top six contractors, for example, who between them installed 444 jobs—better than 50% of the total of 835—three have their own sheet metal shops and three do not.

The latter, without sheet metal shops, put in 244 units; the other three, 200 units.

20 Different Home Unit Makes Shown

Twenty different makes of residential air conditioners are represented in the 835 Cincinnati installations this year. Of these 11 can be classified as those of air conditioning manufacturers while nine are better known as furnace manufacturers.

Great majority of installations, however, employed units of the air conditioning manufacturers. There were 529 of the latter compared with 306 units of furnace manufacturers.

This represents percentages of 63% and 37%, which was exactly the same relationship between these two groups in the 1954 Cincinnati survey.

With few exceptions, and none of these are notable, virtually all the residential systems which were installed in Cincinnati during 1955 were put in by heating contractors.

Contractors were also questioned as to what they have encountered in the way of service problems with residential installations. The comments were varied.

Customer Education Needed

"A lot of customer education is needed," said one. "Some turn on the unit at 3 p.m. on a 95° day and expect 72° temperature by 6 p.m. Customers need education on the operation and limitations of the units."

"People don't know what it's all about," complained another.

"For the most part, there haven't been too many service problems that are major. The owners seem satisfied," commented a leading contractor.

Service Requirements Very Negligible

"The service required has been very negligible," said a fourth.

"Like anything new, we have had troubles at the start, such as with overloads, but this is only normal," commented one.

Other comments on service problems were:

"Usual minor."

"Haven't had any trouble."

"Gas leaks within units and bad wiring connections by manufacturers."

"Not big enough wire for electric service."

"None, excepting necessary installation of extra supply leads."

"Sweating on air ducts. Small basement area. Existing water lines too small."

Airtemp Appoints Carramanna to Post

DAYTON—Amiel B. Caramanna has been named district manager attached to the company's New York regional office of the Airtemp Div. of Chrysler.

As district manager for the New Jersey area he will specialize in residential air conditioning.

Prior to his new Airtemp affiliation, Caramanna was factory representative for Harvey-Whipple, Inc. He was earlier associated with the West Shore Fuel Co., Teaneck, N. J.

ASRE Names Brown Head Of Marine Refrigeration, Conditioning Committee

NEW YORK CITY — The American Society of Refrigerating Engineers has announced the appointment of S. W. Brown, head of the consulting engineering firm bearing his name, as national chairman of the technical committee dealing with marine air conditioning and refrigerating systems.

An international authority on those subjects, Brown also is associate editor of the ASRE's sixth edition of its official publication, "Air Conditioning and Refrigerating Data Book—Applications." He is the editor of those sections treating with comfort air conditioning for commercial, residential and transport applications for land, sea, and air.

You make more sales with

Gibson

because Gibson gives more to your customers!

means more profit to you!

Here is large capacity air conditioning for businesses, and for homes where central air conditioning is desired. Gibson's extra capacity water-cooled condenser gives maximum efficiency with low water consumption. Adjustable air vents give flexible air distribution, and duct connections are convenient.

Available in 2, 3, 5 and 8 horsepower units, air cooled and water cooled in commercial (shown here) and residential models.

Take this Gibson Custom Air Conditioner, for instance! It has Gibson's new Infinite Control direction louver for no-draft circulation. Push Button Controls, of course, that control both cooling and circulation at either high or low speed. Permanent type electro-static dust magnet filter, and thermostatically controlled cooling. Exclusive Gib-Sun-Air Ozone Lamp freshens the air, removing stale odors.

Gibson window air conditioners are available in ¾ h.p., 1 h.p. and 2 h.p. Custom models and in lower priced Deluxe models with the same horsepowers.

SEE US AT THE SHOW! BOOTHS 628 AND 629

79 years of experience and millions of satisfied customers mean you can always rely on

Gibson

REFRIGERATORS • ROOM AND SELF-CONTAINED AIR CONDITIONERS.
FOOD FREEZERS • ELECTRIC RANGES • BUILT-IN RANGES

Gibson Refrigerator Company
Greenville, Michigan

Please send me all the facts on the profitable Gibson air conditioning line.

Name.....

Firm name.....

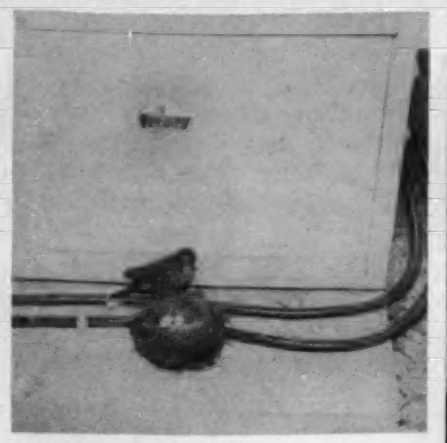
Address.....

City.....State.....

For more information about products advertised on this page use Information Center, page 54.

Dealer Helps Builder Sell Air Conditioned Homes

LINE of Nashville, Tenn. residents waiting to inspect an air conditioned model home. Conducted by Central Air Conditioning & Heating, Inc., local Airtemp Div., Chrysler Corp. dealer and distributor, a publicity campaign produced such results as the firm increased its sales 250%, placing more than 200 builder homes under contract, and helping to increase home sales in the city.



ROBIN who built a nest next to the air-cooled condensing unit in the backyard of the model home set off a chain reaction in publicity which resulted in throngs coming to see the exhibit. A story in a local newspaper said the "air conditioned" robin held back completion of the model home until its nest and four eggs were donated to the children's museum by the builder. The firm capitalized on this publicity by using a picture of the bird with an advertising slogan, "It's a Wise Bird That Has the Airtemp 'Spacesaver.'"

AFTER the human interest feature was carried in the local press, visitors naturally gravitated to the air-cooled condensing unit of the "Spacesaver" to see where Mama Robin had cuddled her eggs. By opening day of the "Parade of Homes" the bird had been removed and folks viewed the air conditioning and heating system in operation. Pictured above is a waterless Spacesaver unit.

Local Promotion Emphasizes Cooperative Advertising, Earns Considerable Publicity

NASHVILLE, Tenn.—A residential air conditioning promotion so successful that it became the basis for a manufacturer's national residential air conditioning program for 1956 was conducted here last spring and summer by Central Air Conditioning & Heating, Inc.

The hard-hitting campaign that made and took advantage of every publicity tool available, produced fabulous results.

Sales Boosted 250%

Central not only earned a 250% increase in sales, but laid claim to the following:

1. Thirty-seven out of 68 home builders in Nashville used Airtemp heating and cooling equipment, which Central distributes in the area and, through a separate company, sells at retail in the city. At last count, Central had more than 200 builder homes under contract.

2. The campaign was claimed to be largely responsible for an over-all increase of 8% in home sales in Nashville. There were nearly 1,700 homes built in greater Nashville in the first eight months of the year, in all price ranges.

3. In a market where 90% of the new homes are normally equipped with low-cost electric heat, 80% of the new homes built this year installed gas heat, of which Airtemp claims to have cornered 75% of the market.

How did Central do it?

Jim Ingram, advertising manager and "builder specialist" for Central, puts it this way:

"Actually the secret of what success we have had has been that we first put ourselves in the builder's position and then were on his side helping him solve a problem.

"At no time were we in a position of trying to sell him a bill of goods. As you know, a builder is interested in only one thing — selling more houses faster at a better profit.

Program Designed To Help Builder Sell Homes

"Our program is designed to help him do just that by use of air conditioning in his homes."

Ingram believes that one of the strongest factors in the success of the program was enthusiasm, yes, even excitement. "We got excited over what air conditioning could do for the homeowner and for the builder, and for us. That excitement carried over to the builders," he asserted.

Other foundations upon which the campaign was built, according to Ingram, were:

A complete line of heating and cooling units with installation flexibility, and good customer acceptance.

A good service and installation organization that can take care of the needs of the builder.

A pre-planned program of merchandising. On this, Central got considerable help from Airtemp Div. of Chrysler Corp., particularly through A. J. L. Moritz, merchandising manager for residential air conditioning. However, Ingram noted, this factory aid was no more than is available to every Airtemp dealer across the country.

Customer Service Foremost

At the very beginning of the promotion last April, Ingram said, "our president, Bill McLeod, laid down the cornerstone of our program when he said that in all of our dealing with the builder, we should keep foremost in our minds the idea of service to the customer.

In their approach to builders, Central salesmen showed the builders how they could get construction economies through building a home for air conditioning and through standardization of materials.

They explained that Central was ready and equipped to pitch in and help the builder sell his homes through cooperative advertising, through model home promotion, and through increased publicity. Each builder would get his own planned advertising and promotion program tailored to sell his houses.

And, Ingram noted, through the proper use of phrases and common advertising material, they also got the benefit of all the advertising and promotion carried on by the other builders using Airtemp air conditioning.

They also explained that Central had a builder's specialist that devoted his full time to selling builder homes so that he could give the program continuity and be alert to grasp all available extra publicity helps.

Not only this, but Central set up meetings with the builders and real estate agents to teach their salesmen how to sell air conditioning.

Then as air conditioned homes began to go up, Central pulled out all the stops on publicity.

It started right at home, by painting on the front window an eye-catching air conditioning display that appeared to be about 20 ft. deep. This emphasized the Airtemp slogan "New Dimension Living"—with the new dimension being home comfort made possible by air conditioning.

In its newspaper advertising it stressed this same theme and listed the names of builders who were erecting Airtemp air conditioned homes. Central rented some 31 billboards in the Nashville area flamboyantly proclaiming "New Dimension Living."

Builders were supplied with attractive site signs that advertised air conditioning but carried the name of the builder in large letters. Nearly 600 additional signs were posted on vacant lots all over the city promoting Airtemp.

Moritz, in describing the promotion to other Airtemp distributors recently, pointed out that while the promotion was heavy, the cost to the dealer was comparatively small. By including so many others in the promotion, he was able to get cooperative funds not only from his manufacturer, but also from the builder and from the gas utility, which was only too glad to help promote gas products.

But these were more or less conventional means of advertising. Central went further. It capitalized on every possible "feature" angle to get additional free—or near free—publicity.

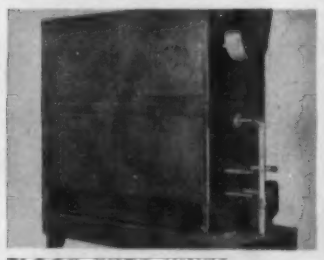
(Concluded on next page)

COILS
Air Conditioning — For existing and new duct applications
Condenser — For special applications
Refrigeration — Blast and gravity types for light and heavy duty

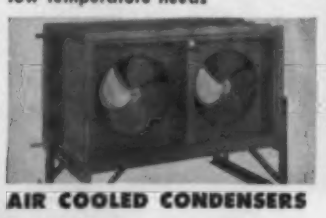
UNIT COOLERS
For high or low temperature storage applications

SMALL UNIT COOLERS
For reach-in and beverage boxes

REMOTE AIR HANDLING UNITS
For general air conditioning
Ceiling and floor mount



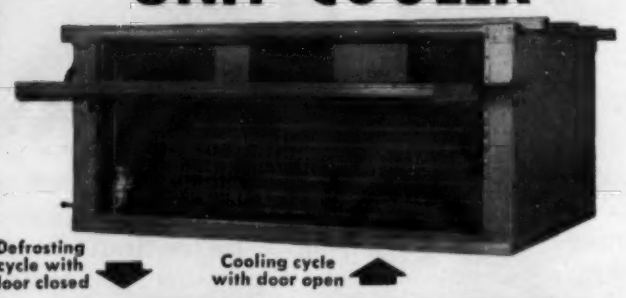
FLOOR TYPE UNITS
Evaporative Condensers and Cooling Towers — For indoor or outdoor applications
Product Coolers — For high and low temperature needs



AIR COOLED CONDENSERS
Remote type

KRACK
HEAT TRANSFER EQUIPMENT
Setting the pace for engineering, quality and service in the refrigeration and air conditioning industry since 1931

At Booth 712...
COMPLETELY AUTOMATIC
ELECTRIC DEFROST UNIT COOLER



Defrosting cycle with door closed
Cooling cycle with door open

FREEZ-E-FEX 900 to 3600 BTU/HR 1° TD

New Bulletins Giving Detailed Specifications Available Upon Request

KRACK ENGINEERED **REFRIGERATION APPLIANCES, INC.**

901 W. Lake St., Chicago 7, Ill., MOnroe 6-1141

For more information about products advertised on this page use Information Center, page 54.

ADDRESSING a dinner for all builders who participated in the firm's sales campaign is Ben West, mayor of Nashville. Each builder was awarded a certificate attesting his contribution to "New Dimension Living," Central's advertising theme which has been adopted for 1956 by Airtemp. Mayor West praised Bill McLeod, Central's president, for his tangible aid to new home business. This event, too, received much publicity, which, in turn, helped sell air conditioning.

A REPRESENTATIVE of Airtemp, Ed Nash, is shown being intervied by Mary Manning of WLAC, Nashville radio station. This further made known the campaign for "New Dimension Living."

Dealer Helps Builder--

(Concluded from preceding page)

One Home Publicized Nationally

One of the homes it promoted last spring was one nationally publicized by Hotpoint and *Living* magazine. It so happened that a robin built a nest next to the air-cooled condensing unit in the back yard shortly before opening day. This proved to be a natural human interest feature that received a front page picture and story in the Nashville *Banner*.

The story said that the "air conditioned" robin held back completion of the model home until its nest and four eggs were donated to the children's museum by the builder.

Central further capitalized on this "news break" by using the picture of the robin and her nest in its own advertising under the slogan: "It's a Wise Bird That Has the Airtemp 'Spacesaver.'"

Six of the builders using Airtemp equipment built houses in Nashville's "Parade of Homes." Though these homes were a minority of the total homes in the project, Central went to work to give the Parade a slam-bang send off.

On the day that the Parade of Homes was to be officially opened, Central invited all local architects to a luncheon. At the luncheon Central explained to the architects its campaign to help builders sell homes faster, pointing out that this, in turn, helped them to design homes faster.

Motorcade Carried Airtemp Advertising

After the luncheon program, all of the architects were loaded into brand-new Chrysler Corp. cars—donated by a local automobile dealer—and driven out to the opening ceremony. Each car in the motorcade carried Airtemp advertising on its side. Two motorcycle policemen—with sirens screaming—escorted the parade through town, giving it the right of way through red lights and all traffic.

In addition, the trucking company that delivers equipment to Central, donated one of his large trucks to participate in the parade. This, too, was decorated with "New Dimension Living" slogans for all to see.

"The architects loved it," Moritz declared. "And when we got to the opening ceremony we took a group picture of them with 'Mrs. Tennessee' cutting the ribbon to open the show."

All this made good copy for the newspapers and excellent publicity for the distributor. "And," Moritz recalled, "it cost him practically nothing. The cars were donated, the truck was donated, and Mrs. Tennessee appeared gratis. It cost the distributor the price of the luncheon and $10 slipped to the policemen to make all the noise they could during the parade."

Later, McLeod staged another such meeting, this time for builders in small towns outside Nashville. He asked his 16 Airtemp dealers in neighboring towns to invite one local builder to have luncheon with him in Nashville.

At the luncheon, Central explained what it had done with builders in the city and the help it was prepared to give these builders in selling their homes.

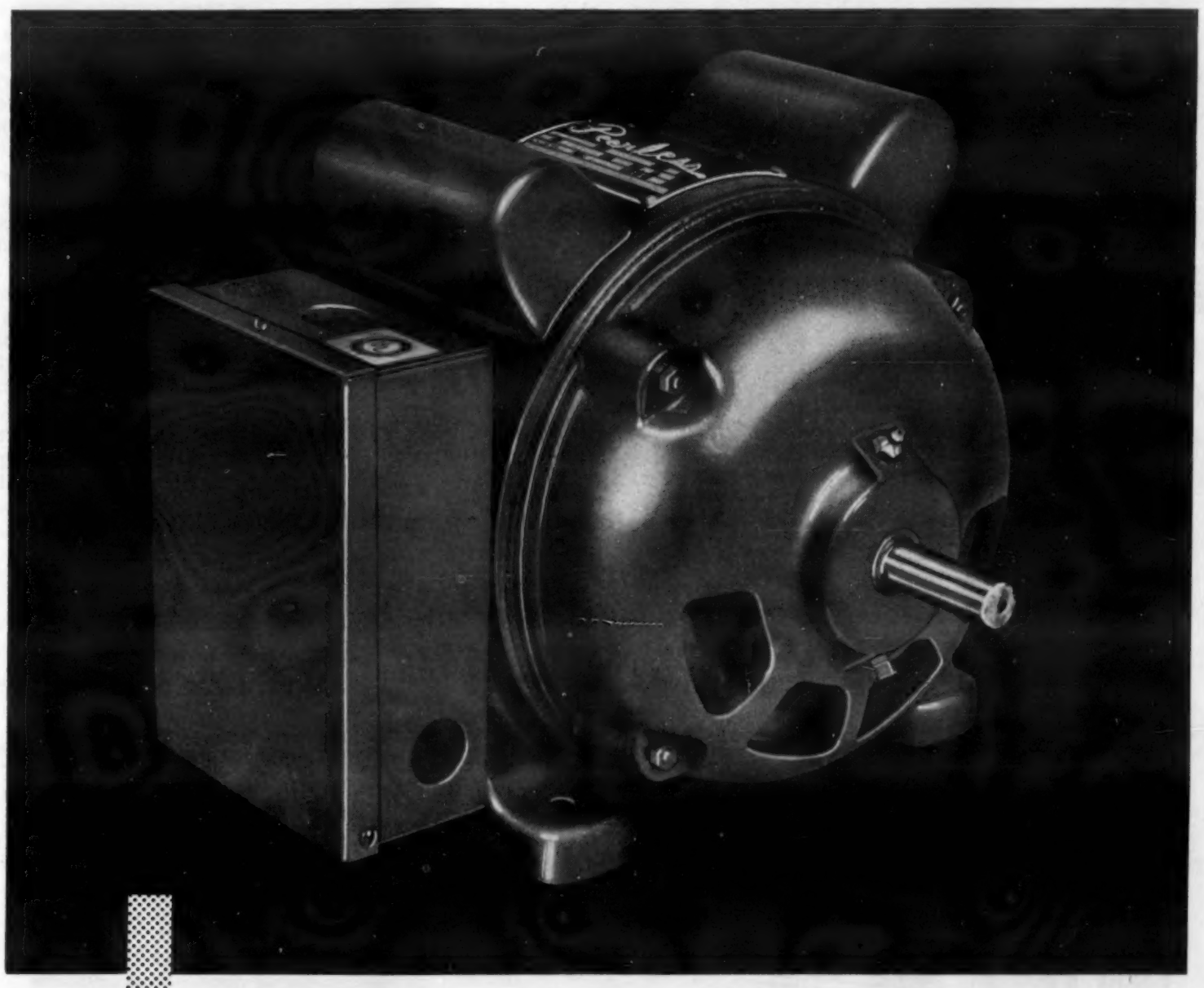
"The builders were asked to sign up with Central right then and there and 15 out of the 16 did," Moritz said.

"For a while," Moritz added, "Central was conducting one model home showing a week for these builders."

Then in mid-summer, when the spring promotion activity eased off, Central invited all the builders that had participated in its campaign to a dinner. The mayor of Nashville, city judges, "Mrs. Tennessee," top officials in the city's utilities, and top realty figures were also invited, as were Airtemp factory officials.

After the dinner, certificates were awarded to each builder for recognition of his tangible contribution to new dimension living. The mayor gave a talk praising McLeod for contributing so tangibly to the new home business in the city, which, he pointed out, also enriched the over-all economy of the city of Nashville.

Again, Moritz noted, the event was of sufficient local importance to warrant radio coverage and to result in television interviews of important figures involved. The newspapers also gave the event good play.



Newest Accepted Design in Refrigeration Duty Motors

This trouble-free motor starts and runs refrigeration compressors under the most severe conditions. It has just three parts which wear because of motion or electrical contact — the bearings; contact points on the stationary part of the switch; and the centrifugal parts of the switch. Excellent design holds wear on these parts to a minimum. Servicing is practically eliminated. Motors are Underwriters' approved.

Write for Peerless Refrigeration Motor Bulletin. It shows recommended wire sizes, construction features and answers those questions asked most often by men who service and distribute refrigeration duty motors. It shows you how motor service and maintenance can be held to a minimum.

ELECTRIC MOTOR DIVISION
THE Peerless® Electric COMPANY
FANS · BLOWERS · MOTORS · ELECTRONIC EQUIPMENT
1515 W. MARKET ST. • WARREN, OHIO

Here's Advanced Design In
1. Sales Appeal
2. Cost Reduction

LIQUID EYE®

A few of the styles in Allin's expanded line

1. **Add Sales Appeal** to your equipment by featuring the fact that Liquid Eye eliminates guesswork by offering your customer a visible means of quick, positive analysis of the refrigerant charge.

2. **Reduce Costs** by taking advantage of the wide variety of Liquid Eye sizes and styles to step up your assembly line output.

You'll find a Liquid Eye to perfectly fit your application. An Allin representative is ready to help you choose from a complete line.

Send for Allin Catalog D-55

Allin MANUFACTURING COMPANY
1153 W. Grand Ave., Chicago 22, Ill.

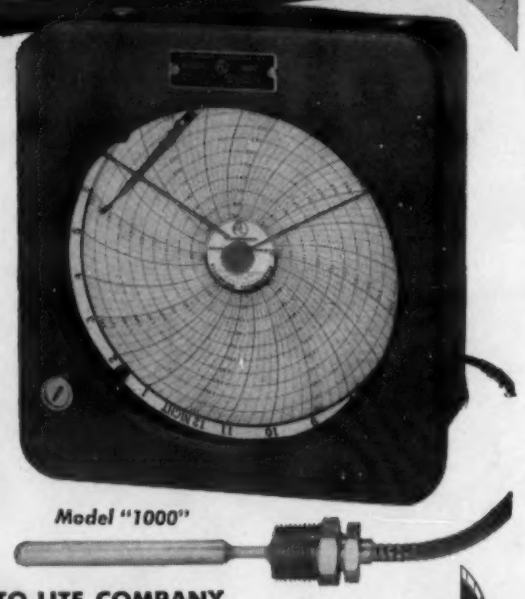
See the complete ALLIN line at Booth 814, A.R.I. Show, Nov. 28-Dec. 1, Atlantic City.

AUTO-LITE

TEMPERATURE RECORDING...

Newly designed, Model "1000" Auto-Lite Recorder gives permanent proof of temperature behavior. • 6" clear reading chart; various standard ranges from minus 40°F. to plus 550°F. • 3 standard types; choice of 24-hr. or 7-day cycle. • Electric or mechanical chart drive. • With capillary tubing for remote reading. Priced from $49.50.

Send for new catalog describing many styles of Auto-Lite temperature Recorders and Indicators.

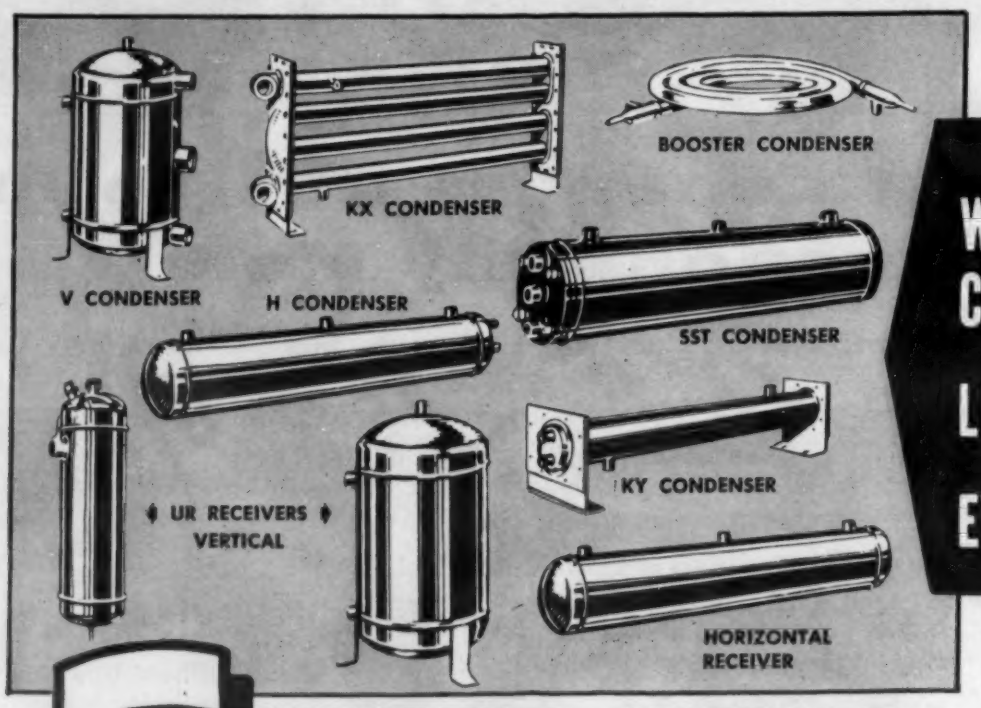


Model "1000"

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO

TEMPERATURE RECORDERS

Auto-Lite Exhibit, Booth 826, Atlantic City



VISIT OUR BOOTH 534
A.R.I. EXPOSITION

U.L. & A.S.M.E.
WATER-COOLED CONDENSERS ¼ TON to 15 TON
and
LIQUID RECEIVERS
for
EVERY REQUIREMENT

All Welded Construction
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Made to Manufacturers' Specifications
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U.L. listed marked WP 250, 300, 400, 425 and 480 psi.
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A.S.M.E. code 6⅝" O.D. and over

STANDARD REFRIGERATION CO.

3543 FILLMORE STREET • CHICAGO 24, ILLINOIS

Refrigeration Problems And Their Solution

By Paul Reed

For Service and Installation Engineers

A Peony Storage Room

Question

I was called in recently by a farmer that has several acres of peonies on his farm. He ships them by the carload to the wholesale market, most of them going to New York.

The big demand for peonies is for Decoration Day, and if his flowers mature and bud a few days before Decoration Day, he can get a good price and really make money on them.

The trouble is that this far south, his peonies come on too early most years, and he has to market them as much as four to five weeks ahead of Decoration Day. This way, he may get only 20 or 30% of the price that he can get right before Decoration Day. When he ships them, they have to be in hard tight buds, so that by the time they get to the wholesalers the buds are beginning to swell and are about ready for sale.

So he wants to build a cold storage room beside an old barn that he uses as a trimming and packing room. He figures that such a room would pay for itself in three or four years, if it will enable him to keep his peonies for about a month and sell them at the top of the market.

He will use this room for peonies only about one month in the year, so he thought at first of using ice, but has decided to use mechanical refrigeration instead. Then he can use it for apples, potatoes, and other things that he raises. Also he figures on renting space to some of the other farmers in his neighborhood. He probably can too, for he is almost 30 miles from the nearest public cold storage warehouse.

Between us we figured out a concrete block building with 3 in. of glass wool insulation in the walls and ceiling and 3 in. of sheet cork and 2 in. of concrete in the floor. The building is to measure 42 by 52 by 10 ft. inside. It will have a flat roof but there will be an open air space.

CUTS 2,000 DOZEN PEONIES PER DAY

He says that the peonies have to be kept at about 35° to keep them in good condition and the buds from opening out. Ordinarily, the peonies mature and are ready to cut at a rate of about 2,000 dozen a day, and he says that they must be down to about 35° within 24 hours or less.

After they are trimmed, they are put in slatted wood crates, each holding 20 dozen. The crate itself weighs 8 to 10 lbs. and the peonies about 2½ lbs. per dozen. The peonies and crates will probably be about 90° when they go into the cold storage room.

I have figured that the heat leakage of the room should be about 35,000 B.t.u. per hour, but I haven't much idea of what the load to cool 1,000 crates of peonies from 90° to 35° will be, and I can't find much information on cooling peonies, or any other flowers, for that matter.

Will you please give me some advice on how much to allow for cooling the peonies? Also any other advice on what type of equipment to use, etc.

Answer

You are correct in regard to the availability of data on cooling flowers, so the following information is mostly from experience that the author had with a somewhat similar installation, although smaller, a few years ago.

The 35° holding temperature specified by your prospective customer sounds about right for cut flowers in bud, and to be retarded for several weeks. Cut flowers in or near full bloom are usually held by the retail florist at much higher temperatures—about 55° to 60°.

The specific heat of the peonies is probably about .9 B.t.u. per lb. This figure is admittedly not very accurate and is based on experience and published data on products of similar character. Also .9 is about right as the specific heat of the wood crates.

HEAVY PULL-DOWN LOAD

Therefore, to reduce 6,000 lbs. of peonies and crates (100 crates of 20 dozen peonies per crate) through 55° (90° to 35°) in 24 hours, would require almost 12,500 B.t.u. per hour, or 300,000 B.t.u. per 24 hours.

There should not be too much opening of the doors of the storage room, for presumably the 100 crates are put into the room several crates at a time, and probably mostly during the morning hours.

Your estimate of 35,000 B.t.u. per hour, or 840,000 B.t.u. for 24 hours, as the heat leakage of the room, sounds about right, so a service load of 200,000 B.t.u. per 24 hours should be ample.

To be generous, we can add 75,000 B.t.u. per 24 hours for the blower fan motors, lighting, and people working in the room while stacking the crated flowers. Incidentally, the crates should not be stacked close together, for there must be plenty of room around them for air circulation.

TOTAL LOAD 1,415,000 B.T.U. PER 24 HOURS

Thus, the total heat load should be about 1,415,000 B.t.u. per 24 hours. It is common practice to select the machine on a basis of 16 hours of operation per 24 hours, although 18 hours of machine operation per 24 hours is also used.

In this case, however, the ma-

(Continued on next page)

For more information about products advertised on this page use Information Center, page 54.

Peony Storage--

(Continued from preceding page)

chines will have this much load for only a few days in the year, mostly during the peony cutting season. Therefore, it is quite safe to select the machine on a basis of 20 hours of operation per 24 hours. Thus, on the 20-hour basis, the hourly load on the machine would be a maximum of 70,750 B.t.u. per hour.

Cut flowers require very high humidities, so the evaporator or evaporators should be chosen on a basis of not more than 10° temperature difference between the room temperature and the coil temperature, and prefrably chosen on a basis of 8° TD. Thus the coil temperature must not be lower than 25° and preferably 27°.

If "Freon-12" or "Genetron-12" is used ,this corresponds to a suction pressure of 25 to 27 p.s.i.g. Since this installation is to be located in the country, there would be advantages in using air-cooled condensing units. A 3-hp. air-cooled unit, operating at a suction pressure of 25 to 27 p.s.i.g. "F-12" or "G-12" and in a 90° ambient has an hourly capacity of about 35,000 B.t.u.

TWO 3-HP. AIR-COOLED MACHINES

Thus two 3-hp. air-cooled condensing units, each with a 35,000 B.t.u. per hour blower coil, should handle this job adequately, even under summer peak load conditions.

After the first few days of cutting, the product load will be very low; also the service load will be greatly reduced, for there should be little occasion for running in and out of the room. Thus, the total 24-hour heat load should be very little, if any, over 1 000,000 B.t.u. per 24 hours. This would reduce the operating time to about 14 out of the 24 hours.

In fact, during cool spring and fall weather ,one machine could probably be turned off, except during times when the room was being loaded with warm products and the pull-down load is heavy.

HIGH HUMIDITY IMPORTANT

As stated above, the blower coils should be selected on the basis of an 8° TD and not more than 10°. The blowers on each of the two machines should be slightly over 35,000 B.t.u. per hour based on 8° or 10° TD, in order to give a high humidity in the room, not less than 85% RH and preferably, over 90%.

Nor should the rate of air circulation be very high; not over two air changes per minute and preferably not over 1½. The room is 52 x 42 x 10 ft. inside measurements, so its cubic content is 21,840 cu. ft.

2 AIR CHANGES PER MINUTE

With two air changes per minute, this would mean that the blowers should handle about 43,500 c.f.m., and for 1½ air changes per minute, 32,750 c.f.m., or about 16,000 to 22,000 c.f.m. for the blowers on each machine.

Instead of using one blower coil on each machine, it would be better to use two, each of course having one half the capacity (17,500 B.t.u. per hour) and one half the c.f.m. (8,000 to 11,000).

Better air distribution can be obtained with four blowers than two. Also, if one machine is turned off in fall and spring, reasonably good air distribution could be obtained with two blowers on the one machine, one blower in each end of the room.

HEATING FOR WINTER

If apples, potatoes, or other products are to be stored in this room in the winter, some provision should be made for heating the room, for the rate of heat evolution from the fruits or vegetables, will not be great enough to keep them from freezing.

Gas or oil-fired unit heaters, thermostatically controlled, would be quite suitable, but make sure that they are well vented to dispose of the carbon dioxide and monoxide.

Engineering Scholarship Honoring Carrier Set Up

ITHACA, N. Y.—The "father of air conditioning," who received his engineering education at Cornell, has been honored by a scholarship at the university.

A Willis H. Carrier Scholarship has been established by Carrier Corp. in memory of the Cornellian who helped to found the firm.

The scholarship will be awarded to an entering student in Cornell's Sibley School of Mechanical Engineering and will be renewable for the full five-year uundergraduate course. It will provide $750 a year.

The Cornell grant is part of a scholarship program being developed by Carrier Corp. to honor both Dr. Carrier and J. Irvine Lyle, first president of the company.

H. C. Chaisson Upped In Tyler Division

COBLESKILL, N. Y.—David F. Canavan, general manager of Harder Div., Tyler Refrigeration Corp., announces the appointment of Henry C. Chaisson as purchasing agent.

H. C. Chaisson

Chaisson has been assistant purchasing agent for the past two years. Prior to this he held positions with Roger Williams Grocery Co., and Union Twist Drill Co.

New Orleans Firm Dissolves

BATON ROUGE, La.—Ajax Air Conditioning of Louisiana, Inc., New Orleans, has filed notice of dissolution.

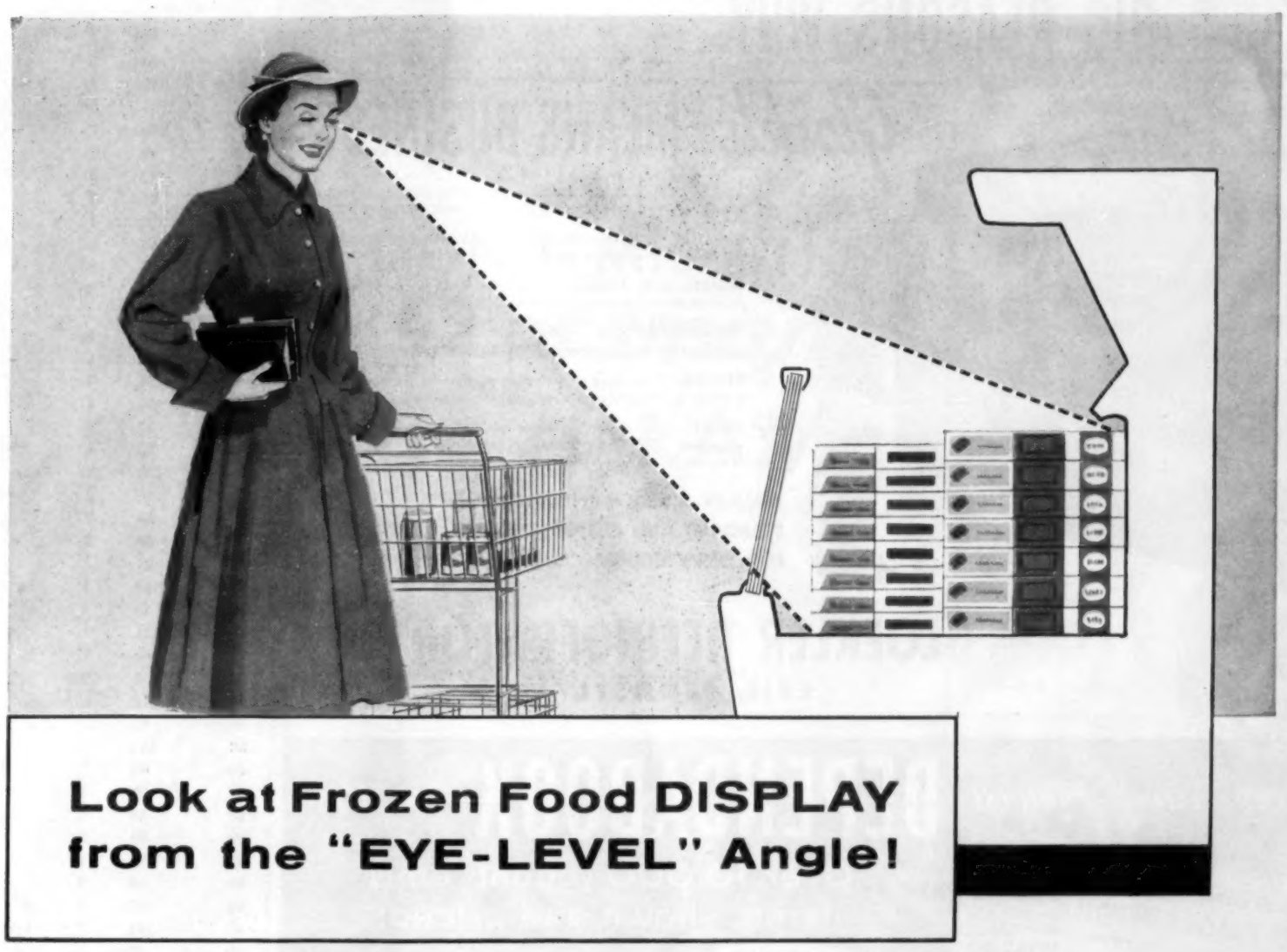
Wagner Names Ford to Higher Post

ST. LOUIS—Wagner Electric Corp. recently announced the appointment of Paul C. Ford as chief engineer of its Electrical Div. to succeed C. P. Potter who is retiring after more than 46 years with the Wagner organization.

Paul C. Ford

In 1937, Ford, then a recent graduate of Purdue university with a degree of B.S. in electrical engineering, joined Wagner Electric as a student engineer.

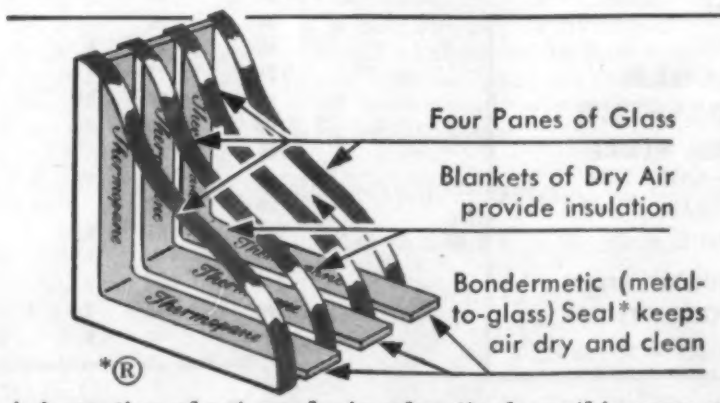
He worked for some years in the distribution and power transformer engineering sections, and was named supervisor of the unit.



YOU NEED GLASS for frozen food display cases because the more food you show the more you sell. That's why you should see that the refrigerated cases you buy have "display windows" of *Thermopane** insulating glass.

Thermopane combines visibility for increased display, with insulation for operating economy. Only *Thermopane* has the famous *Bondermetic Seal* which prevents condensation between the panes of glass and keeps out dirt. There is no organic material to deteriorate.

Next time you look at refrigerated cases, note how much more your customers can see with *Thermopane*. Look for the name imprinted on the *Bondermetic Seal* between the panes. *Thermopane* is used by all leading refrigerated case manufacturers. Libbey·Owens·Ford Glass Co., 608 Madison Ave., Toledo 3, Ohio. *®



LOF GLASS

Thermopane
INSULATING GLASS

LIBBEY·OWENS·FORD
a Great Name in Glass

Survey Shows Replacement Market Exists In Restaurants for Refrigeration Products

FLINT, Mich. — Do restaurants offer a good market for commercial refrigeration equipment?

The owner putting up a new restaurant or food-serving establishment obviously must have refrigeration equipment of various types installed.

But what about the replacement market? To a very considerable degree the market for sales of new equipment to existing restaurants depends on (1) type of equipment now in use, and (2) age of present equipment.

In an attempt to pinpoint this market, staff members of AIR CONDITIONING & REFRIGERATION NEWS recently checked each of 207 food-serving establishments in the industrial city of Flint, Mich. to determine exactly how much refrigerated equipment is now in use, how old it is, and other important

(Continued on next page)

Market potential for commercial refrigeration equipment is often a matter of mere conjecture, but one realistic approach to this problem is to determine how much equipment is actually in use in a given area and how old that equipment is.

To make such a study AIR CONDITIONING & REFRIGERATION NEWS recently sent several staff members to Flint, Mich., a highly industrialized city, to make an intensive and comprehensive study of food-serving establishments and food stores.

Results of the Flint food store survey were published in the Nov. 14 issue of the NEWS. Herewith are presented the facts and figures about refrigerated equipment in Flint restaurants—207 of them.

This data should prove mighty interesting and definitely worthwhile to the manufacturer and dealer alike.

Restaurant	Seating Capacity	Refrigerators (Reach-In) (No.)	Walk-In Coolers (No.)	Frozen Food Cabinets (No.)	Bottle Beverage Coolers (No.)	Salad and Sandwich Refrs. (No.)	Ice Cream Cabinets (No.)	Automatic Ice Cube Makers (No.)	Automatic Flake Ice Makers (No.)	Remote Compressors (No.)	Equipment Age (Yrs.: Newest-Oldest)	Air Conditioned
1	19	2	....	....	....	1	1	....	....	2	5-6	....
2	9	1	....	1	1	....	1	....	....	....	0-1	X
3	40	2	....	1	1	....	2	....	....	....	2-8	X
4	75	2	1	1	1	....	1	....	....	3	2-3	....
5	12	1	....	....	....	....	1	....	....	....	10-15	....
6	60	3	....	1	1	....	1	....	....	....	15-18	....
7	50	2	1	....	....	1	1	....	....	2	0-1	....
8	29	2	....	1	1	....	2	....	....	....	18-20	....
9	58	1	1	....	1	....	1	....	....	1	2-28	....
10	40	1	1	1	....	....	2	....	....	....	25-30	....
11	28	1	....	1	1	....	1	....	....	....	8-10	X
12	30	2	....	....	1	....	1	....	....	....	20-25	....
13	33	1	....	....	2	....	1	....	....	....	18-20	....
14	15	1	....	....	1	....	....	....	....	....	5-7	....
15	40	2	....	2	....	....	....	....	....	....	1-2	....
16	8	1	....	....	....	....	....	....	....	....	17-20	....
17	35	2	....	....	....	....	1	....	....	....	28-30	....
18	6	2	....	....	1	....	2	....	....	....	9-10	....
19	40	1	1	....	1	....	1	....	....	4	19-20	....
20	46	3	....	1	1	1	1	....	....	4	2-3	....
21	9	1	....	....	....	1	1	....	....	1	15-20	....
22	12	1	....	....	....	....	....	....	....	....	20-21	....
23	88	3	1	1	1	....	1	....	....	3	2-17	....
24	8	1	....	....	1	....	1	....	....	2	11-14	....
25	33	....	....	....	....	....	6	....	....	....	9-10	X
26	31	1	....	....	....	1	1	....	....	....	18-20	....
27	50	3	1	....	....	1	1	1	1	1	5-8	X
28	96	4	1	1	3	....	1	....	....	5	9-10	....
29	100	2	1	1	1	....	1	....	....	....	4-15	X
30	350	3	2	1	....	1	1	1	1	2	3-5	X
31	50	3	....	....	1	1	1	....	....	....	7-9	X
32	220	1	4	1	....	1	1	1	1	8	3-18	X
33	70	....	1	1	1	1	1	....	....	2	10-15	X
34	40	2	....	....	....	....	1	....	....	....	1-2	X
35	25	2	....	....	....	....	....	....	....	....	9-30	....
36	150	1	....	....	3	....	1	....	....	1	2-18	....
37	64	....	....	....	3	....	1	....	....	....	9-15	....
38	60	3	....	....	1	....	5	....	....	....	28-30	....
39	47	2	1	....	....	....	1	....	....	2	1-8	X
40	64	....	2	3	2	2	2	1	1	2	0-1	X
41	31	1	....	1	....	1	1	....	....	....	5-18	X
42	12	1	....	1	....	....	....	....	....	....	12-14	....
43	50	1	....	....	....	1	1	....	....	....	5-9	X
44	57	1	....	....	....	1	1	....	....	2	0-1	X
45	32	3	....	....	1	....	2	....	....	....	14-15	....
46	50	1	....	....	1	....	1	....	....	....	9-10	....
47	100	1	....	....	....	1	....	....	....	....	17-20	....
48	36	2	....	1	1	1	1	....	....	1	1-4	....
49	50	2	....	....	1	....	1	....	....	....	10-11	....
50	60	2	....	....	....	1	1	....	....	3	19-20	....
51	97	1	....	1	....	....	1	....	....	....	10-15	X
52	100	2	....	1	....	....	2	....	2	....	2-3	X
53	48	1	....	1	....	2	2	1	....	4	2-4	X
54	21	1	....	1	....	....	....	....	....	2	9-10	....
55	88	1	1	....	....	....	....	1	....	3	5-12	X
56	150	1	1	....	2	....	1	....	....	3	8-9	....
57	75	....	1	....	1	1	1	....	....	3	1-11	X
58	62	....	1	....	3	1	1	....	....	1	.-2	X
59	110	1	1	1	....	1	2	....	....	1	1-8	X
60	44	1	....	1	1	....	1	....	....	....	2-7	....
61	50	1	....	....	....	....	2	....	....	....	2-4	....
62	30	2	....	....	1	....	1	....	....	....	18-20	....
63	68	2	1	....	3	1	1	....	....	1	2-8	X
64	20	1	....	1	1	....	1	....	....	....	3-5	....
65	48	2	....	....	2	1	1	....	....	....	5-8	....
66	157	2	2	3	3	1	2	3	....	5	2-7	X
67	102	2	1	1	3	1	2	1	....	1	3-5	X
68	46	2	1	1	....	1	1	....	....	1	1-4	X
69	18	2	....	....	1	....	1	....	....	....	1-10	....
70	76	1	1	....	1	....	1	....	....	1	10-12	....
71	54	1	....	1	1	....	1	....	....	1	3-6	....
72	72	1	1	....	4	....	1	1	....	1	8-15	X
73	36	2	....	1	2	....	1	....	....	....	1-10	....
74	24	1	....	....	1	....	1	....	....	....	7-9	....
75	54	2	....	....	2	....	2	....	....	....	9-15	....
76	94	4	1	....	2	....	....	1	....	4	3-8	X
77	52	2	1	1	2	1	1	....	....	1	8-9	X
78	44	2	1	....	3	1	1	1	....	3	9-10	X
79	54	2	....	1	2	1	1	....	....	....	3-4	X
80	22	2	....	....	2	2	1	....	....	....	3-7	X
81	28	2	....	....	1	....	1	....	....	....	9-10	....
82	58	2	....	....	1	1	1	....	....	....	1-4	X
83	40	1	....	....	2	....	1	....	....	....	11-14	....
84	74	1	....	1	2	....	2	....	....	....	5-10	....
85	35	2	....	....	2	....	1	....	....	....	17-19	....
86	44	1	1	1	4	1	2	....	....	1	1-8	....
87	22	1	....	....	2	....	1	....	....	....	12-15	....
88	38	2	....	....	1	....	1	....	....	....	5-10	....
89	82	2	1	1	2	1	1	....	....	1	4-8	X
90	25	1	....	....	....	1	1	....	....	....	18-20	....
91	43	....	....	....	1	1	1	....	....	....	1-5	X
92	36	2	....	1	1	....	1	....	....	....	18-25	....
93	40	1	....	....	1	....	3	....	....	1	2-15	X
94	52	1	....	1	1	....	3	....	....	....	9-12	X
95	20	2	....	....	1	....	1	....	....	1	2-16	....
96	40	2	....	1	1	....	3	....	....	1	15-16	....
97	36	....	....	....	....	1	3	....	....	....	3-10	X
98	20	1	....	....	....	....	1	....	....	....	10-11	....
99	50	....	....	1	....	1	3	....	....	....	7-15	X
100	61	1	....	....	....	....	2	....	....	....	14-16	....
101	50	1	....	....	....	....	1	....	....	....	16-20	....
102	100	3	....	....	....	....	2	1	1	4	5-10	X
103	150	2	1	1	....	6	6	....	1	8	2-3	X
104	87	2	....	1	....	....	3	....	....	2	5-9	X

X—Has air conditioning.

6 BIG REASONS WHY...

Gloekler MEANS BUSINESS

- **EXPERIENCE:** Gloekler has been designing and manufacturing commercial refrigerators for more than 50 years.
- **QUALITY:** Only materials and workmanship that assure maximum performance are used in our products.
- **DESIGN:** Both standard and custom designs are available —offer every important advantage to users.
- **PERFORMANCE:** We provide written assurance of faithful performance and economical maintenance of each unit.
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STANDARD AND CUSTOM DESIGNS
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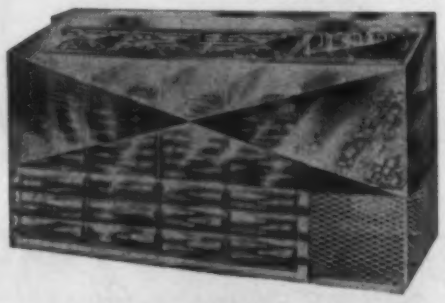

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AVAILABLE IN SIZES 4 TO 10 FT.

For more information about products advertised on this page use Information Center, page 54.

Restaurant	Seating Capacity	Refrigerators (Reach-In) (No.)	Walk-In Coolers (No.)	Frozen Food Cabinets (No.)	Bottle Beverage Coolers (No.)	Salad and Sandwich Refrs. (No.)	Ice Cream Cabinets (No.)	Automatic Ice Cube Makers (No.)	Automatic Flake Ice Makers (No.)	Remote Compressors (No.)	Equipment Age (Yrs.: Newest-Oldest)	Air Conditioned
105	160	3	2	1	....	....	2	....	....	3	1-7	....
106	28	2	....	....	....	....	2	....	....	1	3-12	X
107	76	2	1	1	....	....	....	....	....	3	2-4	X
108	32	1	....	....	1	....	1	....	....	....	7-9	....
109	22	1	....	....	1	....	1	....	....	....	10-15	....
110	18	2	....	....	1	....	1	....	....	....	4-10	....
111	46	1	....	....	1	....	1	....	....	....	8-9	....
112	18	1	....	....	1	....	1	....	....	....	9-12	....
113	78	2	....	1	1	....	1	....	....	....	2-8	....
114	32	2	....	....	1	1	1	....	....	....	2-10	....
115	28	1	....	....	1	....	1	....	....	....	15-18	....
116	52	1	1	2	1	1	4	....	....	1	5-7	X
117	44	1	....	....	1	....	1	....	....	....	2-9	....
118	56	2	1	....	....	1	1	....	....	1	5-6	X
119	48	3	1	....	....	1	2	....	....	1	0-2	X
120	18	1	....	....	1	....	1	....	....	....	2-6	....
121	20	1	....	....	1	....	1	....	....	....	15-20	....
122	28	2	....	....	1	....	1	....	....	....	8-10	....
123	132	2	1	1	4	....	1	1	....	1	2-7	X
124	24	1	....	....	1	....	1	....	....	....	7-8	....
125	12	1	....	....	1	....	1	....	....	....	5-15	....
126	16	2	....	....	1	....	1	....	....	....	4-7	....
127	32	1	....	....	1	....	1	....	....	....	3-5	....
128	99	1	1	1	2	1	1	....	....	1	1-3	X
129	22	1	....	....	1	....	1	....	....	....	1-15	....
130	56	2	....	1	1	....	1	....	....	....	7-9	....
131	56	3	....	....	2	....	1	....	....	1	9-15	....
132	20	2	....	1	....	....	1	....	....	....	1-8	....
133	52	2	....	....	1	....	1	....	....	....	5-15	X
134	78	2	....	1	3	....	2	....	....	....	4-9	X
135	38	2	....	....	2	....	1	....	....	....	19-20	....
136	44	3	1	....	3	....	....	1	....	1	9-16	....
137	64	1	....	2	....	1	1	....	....	....	1-3	X
138	28	1	....	....	1	....	1	....	....	....	7-10	....
139	24	....	1	1	1	1	1	....	....	....	3-5	....
140	40	2	....	....	1	1	1	....	....	....	1-4	....
141	88	2	1	1	3	....	1	1	....	1	1-7	X
142	50	2	....	....	1	....	1	....	....	....	8-9	....
143	74	2	1	2	....	....	1	....	....	1	2-3	X
144	64	2	....	....	3	....	1	....	....	....	5-8	....
145	68	4	1	....	2	....	1	....	....	1	5-7	X
146	78	2	1	1	3	....	1	1	....	1	7-8	X
147	64	3	1	....	2	....	....	1	....	1	7-10	....
148	62	1	....	1	2	....	1	....	....	....	3-5	X
149	24	1	....	....	1	....	1	....	....	....	5-7	....
150	60	1	1	....	2	....	....	1	....	2	3-4	....
151	108	1	....	1	2	....	1	....	....	1	2-3	....
152	20	1	....	....	1	....	1	....	....	....	5-15	....
153	32	1	....	....	1	....	2	....	....	....	7-9	....
154	64	2	1	....	2	....	4	....	....	1	1-2	X
155	24	1	....	....	1	....	1	....	....	....	1-5	X
156	64	1	1	....	1	1	1	1	....	5	1-19	X
157	450	1	3	2	1	1	1	1	....	6	1-8	X
158	20	1	....	....	....	1	1	....	....	....	4-7	....
159	115	2	1	1	1	1	....	1	....	3	2-6	X
160	30	2	....	....	....	....	....	1	....	....	8-14	....
161	124	2	....	1	....	....	1	1	....	2	2-3	X
162	40	1	....	....	....	1	1	....	....	1	3-9	....
163	30	2	....	1	....	....	2	....	....	1	8-10	....
164	35	1	1	1	....	....	1	....	....	1	4-5	....
165	30	1	....	....	....	....	1	....	....	1	2-9	....
166	54	1	1	1	....	1	1	....	....	3	2-4	X
167	21	2	....	....	....	1	1	....	....	1	1-15	X
168	50	1	....	1	....	1	1	1	....	2	1-2	X
169	60	1	....	....	....	1	2	....	....	2	5-6	X
170	38	3	....	2	....	....	1	....	....	....	2-7	....
171	35	2	....	1	....	1	1	....	....	2	1-8	X
172	35	1	....	1	....	....	1	....	....	1	5-14	....
173	80	2	....	1	1	....	1	....	....	1	3-7	....
174	60	3	....	1	1	....	1	....	....	1	9-10	....
175	75	1	....	1	....	1	1	....	....	1	4-5	....
176	25	2	....	1	1	....	1	....	....	1	5-9	....
177	88	2	1	1	4	1	1	1	....	1	7-15	X
178	62	2	....	....	1	....	1	....	....	3	7-9	X
179	39	1	1	1	1	....	1	....	....	3	1-6	X
180	80	1	1	....	1	....	1	....	....	2	4-9	X
181	28	1	....	....	....	....	1	....	....	....	17-19	....
182	150	1	1	1	....	1	1	....	....	3	7-8	....
183	64	1	1	....	....	....	1	....	....	2	9-36	....
184	50	2	....	....	1	1	1	....	....	....	9-11	....
185	58	....	....	....	....	1	1	....	....	....	9-10	....
186	40	1	....	....	1	1	1	....	....	....	1-17	....
187	90	2	1	....	2	....	1	....	....	....	2-18	....
188	60	1	....	....	....	1	1	....	....	....	16-18	....
189	57	1	....	....	1	....	1	....	....	1	5-9	....
190	100	1	2	....	....	1	....	....	....	6	20-22	....
191	89	1	....	....	....	....	3	....	....	....	1-7	....
192	20	2	....	....	....	....	2	....	....	....	25-28	....
193	50	2	1	1	....	....	1	....	....	....	16-18	....
194	30	2	....	....	....	....	....	....	....	....	28-30	....
195	100	1	....	1	1	1	1	....	....	....	3-7	X
196	15	1	....	1	....	....	1	....	....	1	3-6	....
197	40	1	1	1	1	....	2	....	....	2	4-9	X
198	20	1	....	....	1	....	1	....	....	1	8-9	....
199	40	2	....	....	....	....	2	....	....	....	5-8	X
200	60	3	....	2	2	1	5	1	....	....	1-7	X
201	20	1	....	....	....	1	1	....	....	....	4-5	....
202	20	1	....	....	....	....	1	....	....	....	5-9	....
203	52	1	....	2	1	1	1	....	....	1	8-9	X
204	30	1	....	1	....	....	3	....	....	....	8-15	....
205	25	1	....	....	1	1	1	....	....	....	9-19	....
206	25	2	....	....	1	....	1	....	....	....	7-10	....
207	30	1	....	1	....	1	1	....	....	2	2-9	....
Total	11,478	318	71	95	192	78	253	28	8	202	8+	78

X—Has air conditioning.

207 Restaurants Studied--

(Continued from preceding page)

market data.

The 207 establishments represent better than 95% of all the restaurants in the Flint area, ranging in size from the "hole-in-the-wall" lunch counter with a seating capacity of six to the largest restaurant which seats 450.

(A similar survey was made of 235 food stores in the Flint area. Details of this study were published in the Nov. 14, 1955 issue of AIR CONDITIONING & REFRIGERATION NEWS.)

Details of the Flint restaurant survey are given in the accompanying table, which shows the following summaries:

318 reach-in refrigerators.
71 walk-in coolers.
95 frozen food cabinets.
192 bottle beverage coolers.
78 salad and sandwich refrigerators.
253 ice cream cabinets.
28 automatic ice cube makers.
8 automatic flake ice makers.
202 remote condensing units.
Average age of all equipment, 8+ years.
78 restaurants air conditioned.
Seating capacity of 11,478.

As can be noted in the table, just about every food serving establishment in Flint has a reach-in refrigerator. As employed here, however, the term "reach-in" more accurately describes the *function* of this piece of refrigeration equipment rather than its size.

Many of the 318 reach-in refrigerators listed in the table are the standard commercial reach-in refrigerator, including some of the older built-in jobs. Quite a number of the smaller restaurants, though, find that a conventional household refrigerator nicely meets their requirements for a reach-in.

Generally speaking, the 71 walk-in coolers in use in Flint restaurants are to be found in the larger establishments, although some will be found in establishments with relatively low seating capacity.

It should be pointed out here, also, that the seating capacity listed for some restaurants can be slightly misleading as to their volume of business and consequent needs for refrigeration. We have reference in this case to the drive-in restaurant, which usually has a counter and tables, but may do the largest share of its business in the drive-in trade.

The 95 frozen food cabinets listed in the Flint restaurant tabulation averages better than one for every three food serving establishments.

Chest-type home freezers dominate the Flint restaurant

(Concluded on next page)

At The Show...

DON'T MISS THE

Scotsman

ICE-O-RAMA

SEE AMERICA'S ONLY COMPLETE LINE OF AUTOMATIC ICE MACHINES

BOOTHS 245 and 246

ALL-INDUSTRIES SHOW

ATLANTIC CITY, N. J.

What a year this 1955 has been for Scotsman Ice Machine sales! Scotsman dealers have moved 'em like lightning, and our factory has been running at extra capacity all year. We are increasing our facilities, already planning for our 1956 season, as we expect it to be the biggest year in ice machine history!

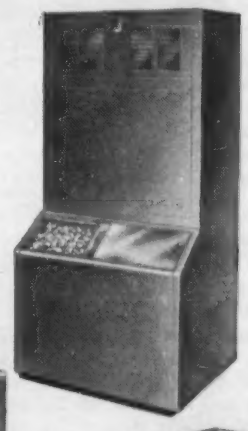
This means that Scotsman dealers are in the best possible position—you offer the most complete line—with the new SF-75-WSA Super Flaker you have something for the small diner and drive-in, an untapped market—you are backed by the company that *specializes* in Ice Machines—and you go into 1956 with a built-up demand at an all-time peak!

Come to see us at the All-Industries Show at Atlantic City, November 28—December 1. We'll be in Booths 245 and 246, and we invite you to stop by and hear more about what successful Scotsman dealers are doing.

Write for Scotsman dealer information and material on the tremendous new Scotsman Fall Promotion, the Golden 90 Days!

Super Cubers

Produce 100 to 500 pounds daily. Exclusive "Cycle-Matic" control. Guarantees purest, finest ice. Dependable performance.



500 lbs. daily

110 lbs. daily

225 lbs. daily

Super Flakers

Produce 150 to 1050 pounds daily. Efficient, dependable. No choppers, grinders or knives. Simplest flaking mechanism made.

1050 lbs. daily with automatic storage

150 lbs. daily

350 lbs. daily

550 lbs. daily

1050 lbs. daily

350 lbs. daily with automatic storage

550 lbs. daily with automatic storage

Every SCOTSMAN Ice Machine operates on standard electrical connections.

AMERICAN GAS MACHINE COMPANY

Division of QUEEN STOVE WORKS, INC.

2011A Front Street • Albert Lea, Minnesota

SCOTSMAN AUTOMATIC ICE MACHINES

America's Most Complete Line

SUPER FLAKERS SUPER CUBERS

(Advertisement)

Federal Refrigerator to Make Franchise Offer at Exposition

Exclusive Distributorship to Be Made Available

ATLANTIC CITY, N. J.—In line with their expansion program for 1956 the Federal Refrigerator Manufacturing Company will be offering a number of new exclusive distributor franchises at the ARI Exposition in Atlantic City this week, it was announced today by John Romadka, President of the Wisconsin firm. These distributorships will be offered on an unusually attractive basis.

In announcing the offer Mr. Romadka pointed out that their modernization program of recent years has placed Federal Refrigerator in a unique and enviable position in the field of commercial refrigeration equipment. The company is equipped with the latest techniques and modern facilities providing them with a completely new line of trend-setting refrigeration displays that are unmatched anywhere.

"We have a complete line of the best in refrigerated display equipment," said Romadka, "and the demand is growing. Take the growth of the food-selling industry, plus the methods used in selling foods today, as compared with a few years ago. All this has tremendously increased the need for our equipment."

"Refrigerated display has come of age," he went on. "Every modern store, large or small, must be equipped with refrigerated sales cases in order to display and sell meats, frozen foods, dairy goods, produce, fruits, beverages and ice cream. Also, this tremendous increase has been augmented by the trend to suburban living, supermarkets, relocation of population centers, to say nothing of the large increase in the actual population of the United States."

The distributor who qualifies for an exclusive Federal franchise will be enjoying one of the soundest, most profitable, business relationships available in the industry today. He will be handling a line of equipment in heavy demand, that leads in beauty and selling design, is second to none in quality, gives guaranteed refrigeration and is competitively priced.

In his statement today, Romadka outlined Federal's ten-point program entitled "The Federal Franchise—A Blueprint for a Profitable Business." Briefly, the ten points were: 1. Continued expansion of national advertising to the ultimate user, 2. a scheduled, selective direct mail program to potential customers, 3. a detailed selling plan teaming the distributor and the the Federal field man in a joint selling effort, 4. a continuing program of demonstrations, and sales meetings with the distributors' prospects, 5. strong convention participation by the company, exhibiting equipment, store layouts and stressing service and engineering helps, 6. creation of modern distributor identification signs, 7. provision of complete catalogs, data sheets, assembly manuals, 8. a program of close distributor awareness at all times of the company's national advertising and merchandising material, 9. a planned publicity program for the distributor's local area, and 10. a system of providing exclusive deals arising from inquiries to the company from the distributor's protected territory.

Federal Refrigerator Mfg. Co. feels that the ARI Exposition is the ideal place to announce the availability of the new Federal franchise.

Romadka and his associates will be on hand to outline the plan in complete detail for interested visitors at the Federal booth throughout the week.

Restaurant Equipment Survey--

(Concluded from preceding page)

picture, there being 49 in use. There are 21 upright freezers, 16 ice cream cabinets being used for frozen foods (and in some cases ice cream), six commercial reach-in freezers, two walk-in freezers, and one open frozen food case.

Bottle beverage coolers are rather widely used, as the Flint tabulation indicates. There are 192 in use in the 207 Flint restaurants.

The 78 salad and sandwich refrigerators noted in the table represent one for every three restaurants. A variety of designs is found in this category of equipment, which is also used in many restaurants for desserts.

Ice cream cabinets are found in nearly every Flint restaurant, a total of 253 being tabulated for the 207 establishments listed in the table.

Many of these, though not all, belong to ice cream companies, or were purchased from the latter. Incidentally, a major share of the bottle beverage coolers were obtained from bottling companies.

The tabulation of ice makers shows only 28 automatic ice cube makers in use in Flint food-serving establishments plus eight automatic flake ice machines. In addition to these, one conventional tray type ice maker was found in the Flint restaurant survey.

Many of the restaurants have some sort of water-cooling equipment which, in the thinking of restaurant operator, eliminates the need for ice-making equipment. Quite a number, however, don't bother to cool drinking water at all.

The survey also notes the use of 202 remote condensing units for various refrigeration applications in Flint restaurants.

Average age of the refrigerated equipment listed in this survey works out to a little better than eight years. The table itself lists the range between the newest and oldest piece of refrigerated equipment in each restaurant.

Quite a number of the figures listed as age of equipment are strictly estimates because the present owners or operators took over the restaurant with the present equipment in place and have no definite idea as to the age.

Brand new, or relatively new, equipment shows up with fair regularity in the table, but there is a considerable amount of equipment that probably could be profitably replaced.

Attempts were made during the course of the Flint survey to determine the type of refrigerated equipment restaurant owners were planning to add or replace. As might be expected, most people were reluctant to commit themselves on this score.

The following were cited, however:

Five plan to add freezers.

Four want new reach-ins.

Three are planning to buy walk-in refrigerators.

One wants an automatic ice maker.

Another figures to get a bottle cooler.

Five definitely stated air conditioning was next in order.

It would seem likely that considerably more than five restaurants would be logical prospects for air conditioning. As the tabulation shows, 78 out of the 207 Flint restaurants studied in the survey now have air conditioning.

This leaves 129 without air conditioning. We find it difficult to imagine any food-serving establishment not being a prospect for air conditioning, regardless of size.

An attempt was made in the survey of Flint restaurants to determine where the present refrigerated equipment had been purchased. It was impossible to obtain this information in every instance because the present operators of many restaurants had taken over the restaurants intact and therefore don't know where the equipment was purchased, or, as previously noted, when.

But judging by the data that was obtained, most of the equipment was purchased from local restaurant supply houses and refrigeration dealers, with the former predominating.

In a great number of cases, the ice cream cabinets used by restaurants belonged to the ice cream companies. A number of these had been purchased from dealers or, in some instances, the ice cream companies.

Many of the bottle beverage coolers were obtained from bottling companies.

MUST SELL

To take tax loss, we must make lump sum sale at once of substantial inventory of finished air conditioners and air conditioner compressors, condensers, motors, fans and component parts. This is an unusual buy at an attractive price. Write at once to Box A5390, Air Conditioning and Refrigeration News.

AIR CONDITIONING & REFRIGERATION
TEMPERATURE LIMITED
BURLINGTON ROAD, FULHAM, LONDON, SW6, ENGLAND
Cables : TEMTUR LONDON

SLANTS ON SERVICE

"Slants on Service" is a "package" devised by the NEWS to meet the needs of its busy readers in the service and contracting business.

This column includes many field-tested solutions to unusual, as well as common, problems that the refrigeration man may meet in the performance of his work.

Locating Leaks In Tubing In Concrete

"Upon reading the article 'Locating Leaks in Tubing in Concrete' which appeared recently in AIR CONDITIONING & REFRIGERATION NEWS," says John H. Berlin, engineer for E. G. Shafer & Co., Washington, D. C., "I think the following information might be of value for future installations for your inquirer:

"When the tubing is welded or soldered in place, fill the system with water to a point approximately two to three inches from the top, then put air pressure (125 lbs.) into this small space.

"If there is a leak in the system the volume where the air pressure is contained will increase relatively slow but the pressure will be reduced on the gauge by an easily noticeable amount.

"It is advisable to keep someone in the vicinity of your air gauge to take note of the pressure during the pouring of the slab.

"Pressure should be kept on the system at least 24 hours before pouring, keeping in mind that a difference in the surrounding air temperature will affect the volume of the water and the pressure during this period.

As for the leaks, after the concrete is poured, I think your suggestions are as good as any I've heard. The escape of any liquid or gas would give a general location. When the concrete is poured he is in a tight spot.

"Hope this will not discourage the inquirer on this type of system which I think, if controlled properly, gives maximum heating comfort."

Oiling Condenser Motors

"When I install a new G-E condenser fan motor (5KSP series), I always first drill a small hole in the top of the metal casing opposite the shaft end, and fill it with oil," reveals Al Dalpiaz of Dennison, Ohio.

The oil hole is then closed off with a sheet metal screw.

Dalpiaz says he does this with every G-E condenser fan motor he encounters in the course of servicing units.

Condensate from Coil Ups Humidity of Cooler

When the owner of an apple storage cooler complained that the apples were drying out, Al Dalpiaz of Dennison, Ohio came up with an ingenious though simple solution to the problem.

"We took a short piece of copper tubing 1 in. long and placed it in the blower drain," he explains.

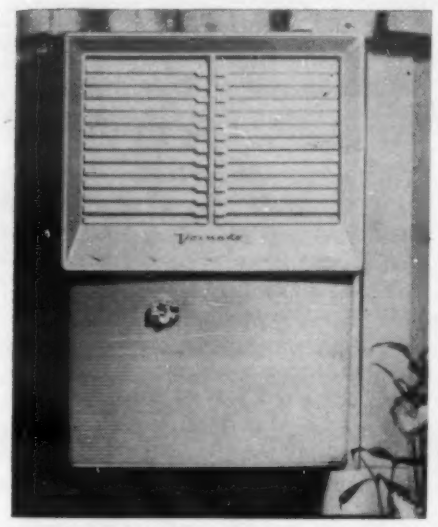
"This allowed about 1-in. of condensate water off the coil to remain in the blower drain pan, and thus the blower would force moisture-laden air into the cooler, raising the humidity," he says.

WHAT'S NEW FOR '56
SEE FOGEL
BOOTH 249
ALL INDUSTRY SHOW
ATLANTIC CITY

- NEW AND EXCLUSIVE DOUBLE DECK FREEZER
- COMPLETELY REDESIGNED ATTRACTIVE REACH-INS
- THE INDUSTRY-ACCEPTED FOGEL VEGMART
- ANGLE VISION FREEZER — ORIGINATED BY FOGEL
- *PLUS MANY OTHER "FOGEL FIRSTS"*

FOGEL REFRIGERATOR CO.
Pioneers in Dependable Commercial Refrigeration Since 1899
5400 EADOM STREET, PHILADELPHIA 31, PA.

For more information about products advertised on this page use Information Center, page 54.



CASEMENT WINDOW model is new in '56 "Vornado" room unit line offered by O. A. Sutton.

Vornado--

(Concluded from Page 1)

most powerful and efficient we've ever offered."

Vornado's Deluxe low-priced line consists of ½, ¾, and 1½-hp. units. These units feature high cooling capacity, flush mount, and a simplified single-unit control system, the company said. Some models also have automatic thermostatic control.

Deluxe models may be mounted flush with the window sill. They will fit a window that is only 24 in. wide. They may also be mounted one-half in and one-half out of the window.

The Custom line include ¾, 1, and 2-hp. units that have been completely re-designed to allow a wide range of installation and use possibilities, it was stated.

The ¾ and 1-hp. models are streamlined, thin units that can be mounted flush, all-in, or to any position between, according to the company. The can also be mounted through-the-wall.

As an added feature, Vornado offers a roll-around stand for these models.

Vornado's 2-hp. unit mounts flush with the window or over the transom for small shop installation. In the latter case, special remote controls are available for convenient operation.

The Custom air conditioners are controlled by a simplified pushbutton system, located on the front of the unit and concealed behind a door. Automatic thermostatic control is standard equipment on all Custom models.

"The Custom line is given added versatility with a 'Day-Nite' switch that allows the user to get maximum quick cooling for warm rooms, and maintain maximum cooling on hotter days," the company said. "The switch can be placed in 'low' position' for mild day operation or night time cooling.

"All switches on the Custom units are protected with an interlocking mechanism that prevents high power surges when starting.

This year, Vornado has introduced a ½-hp., 115-volt casement window unit "that draws only 7½ amperes of current for economical 'plug-in' operation, it was stated. A ¾-hp. casement window model is also available.

The casement window units can be mounted all inside the room to allow closing of the window. For normal use they can be mounted one-half in and one-half out of the window.

"Because they are small and compact, the casement units require only a 16-in. wide by 22-in. high opening for installation," it was pointed out. "On casement windows where there is a 26½-in. height available, they may be installed without removing the operating crank."

Control panel is located on the front of the unit and concealed behind a small door. Controls are all pushbutton operated.

By arranging the coil in a "V" shape, Vornado engineers have enlarged the coil's exposed area for increasing cooling capacity, according to the company.

New color tones have been incorporated in the cabinet design to make the units blend in with any room or office decor. They are finished in two-tone grey-green effect.

All moving parts float on live rubber or spring mounted cushions. Cabinets are insulated with thick layers of sound deadening materials.

Conditioner Timer Cuts Operating Cost, Improves Comfort

ASHLAND, Mass.—The new electric memory device, Telechron timers, offers a unique concept in temperature control today to owners of air conditioners and for businesses that utilize air conditioning to increase office efficiency, states John H. MacLeod, industrial sales manager of General Electric Co.'s Clock and Timer Dept. here. Applying timers to a multitude of household products, to help them work more efficiently for purchasers of these products, is a development in appliances that is helping sell products and providing a new dimension in the use of various appliances, MacLeod pointed out.

The advantages of air conditioning timers has already been recognized by several leading manufacturers, MacLeod said. Philco Corp. and Sears, Roebuck & Co. are offering air conditioners with timers at the present time. Others plan to follow suit, he stated.

PHILCO window air conditioner utilizes "Comfortaire" to provide automatic "on" and "off" control at pre-selected time. "Skip-Day" control can omit operation for lapsed times up to two days.

The timer, feature, which is a very small factor in the price of the unit, provides economical control over air conditioner functioning. It can be pre-set to turn off and on at any hour of day or night to suit the owner's habits and comfort. The unit can be set to stay off for an entire weekend yet come on in time to provide cool comfort when the owner returns.

The one or two day skip feature in the timer makes it valuable for offices since the conditioner can be turned off while employes are out of the office overnight or on weekends, yet it can be pre-set to turn on again in time to make the offices cool and comfortable before they return.

Needless to say, MacLeod stated, timer control, since it cuts down unnecessary running of the air conditioner, decreases electric power usage, and offers a saving to the owner who utilizes this feature on his unit.

RUST

can eat holes in your Sales, too!

A timely message to all with a stake in ROOM CONDITIONERS

Rust and corrosion can be stopped cold by a single coating of Porcelain enamel. And it costs but little to give product-users this protection against early deterioration.

In a highly competitive field such as room conditioning, this could make a big difference in a company's sales—especially so in areas where salt-laden moisture in the air plays havoc with ordinary materials and finishes.

You're going to see Porcelain enamel on room conditioners this year. Naturally, the companies behind these products are seeking a sales advantage—not only for '55, but for next year and the years ahead.

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Water-Saving Devices Compared

Evap, Tower, Air-Cooled Condenser Performance, Costs Analyzed Under Variety of Field Operating Conditions

DETROIT—Considerations in the selection of one of the three types of water-saving devices for use with mechanical refrigeration systems were outlined by Cecil Boling, president, The Bush Mfg. Co., in a recent talk before the Detroit Section of the American Society of Refrigerating Engineers.

"The question of the relative merits of water-saving devices is a somewhat controversial subject," said Boling at the start of his talk. "There have been a number of talks given and a number of papers printed during the past several years on the comparative merits of evaporative condensers, towers, and air-cooled condensers and, more recently, it would seem that many people consider that the air-cooled condenser is the Utopia of the water-saving devices.

"At Bush we manufacture all three types of water-saving devices and, therefore, have no particular axe to grind as to the merits of each, but we did feel that it would be well to have a factual comparison if same could be proven.

"It was decided to present a simple set of catalog data as being as near to the facts as could be presented. We have taken a 5-hp. condensing unit operating at a 20° suction and have used on this condensing unit the various types of water-saving devices in order to draw the comparative figures. From this information, we made comparisons on the following points:

Points of Comparison

"1. Approximate initial cost and c.f.m. of air required.

"2. Operating cost under varying conditions.

"3. Comparson of annual operating costs.

"4. Maintenance.

"5. Operating problems.

"Fig. 1 is merely a comparison of catalog list prices of the evaporative condenser, cooling tower, air-cooled condenser of standard selection, and the air-cooled condenser, oversized.

"Note also in Fig. 1 the relative comparison of c.f.m. required, because in many cases this has a definite bearing on installation costs or initial costs. It is obvious from the comparison that there is really no great difference between the initial cost of the equipment, unless the requirements of a particular job present varying difficulties for the various types of equipment.

"On the question of installation costs, there are so many variables that it is almost impossible to compare them for any one job. We therefore have not made this a part of the comparison.

"Referring to Fig. 2 note that we have selected equipment based on 90° ambient, 20° suction, and 78° wet bulb, which are quite standard catalog rating conditions. All of this information is taken directly from the manufacturer's catalogs. Note that there is a capacity variance, wherein the unit using the evaporative condenser and tower have a capacity of 52,000 B.t.u. per hr. and a unit with a standard air-cooled condenser has a capacity of 46,800 B.t.u. per hr.

Fig. 1—Comparative Initial Cost and Approximate C.f.m. Required, 5-Hp. Unit

	Total List	Approx. c.f.m.
With Evap. Condenser	$2,800	1,100
With Cooling Tower	2,700	2,200
With Air-Cooled Condenser Standard..	2,500	5,000
With Air-Cooled Condenser Oversized.	2,800	7,500

Operating Costs Compared

"Taking power consumption and water consumption we obtained a total operating cost for each unit per ton per hour, and the comparison shows that the tower would cost about 7% over the evap and the unit with a standard air-cooled condenser would run about 18.4% over the operating cost with the evaporative condenser.

"We have used a ⅙-hp. fan motor and ⅛-hp. pump motor on the evap. We have used a ⅙-hp. fan motor and ½-hp. pump motor on the tower in order to provide a 40-ft. head.

"On the air-cooled condenser, we have used two ⅙-hp. motors; whereas, if a single motor were used, it would be a ½ hp., so we have taken the more favorable selection of two ⅙-hp. motors.

"We have taken water usage on the tower and evap as 5% of the amount of usage that there would be on a straight city water-cooled job. In all cases we have assumed that the units had propeller fans—to make them strictly comparative. It would seem to us that this would be a fair and true comparison of operating costs with capacity selection based on standard catalog design conditions.

At Less Than Maximum

"Since design conditions are usually maximum, the natural question is what would be the comparison in operating costs at less than maximum conditions, and for this information refer to Fig. 3. In this case, we have chosen 75° ambient, 20° suction, and 65° W.B. We used the 65° W.B. because this gives the same approximate relative humidity condition as you have at 90° D.B. and 78° W.B.

"Under this condition, note the changing capacity wherein the unit with evaporative condenser and cooling tower show a capacity of 57,500 B.t.u. per hour and the air-cooled condenser 51,900 B.t.u. per hr.

"Again, taking the water cost and power cost, note that the unit with cooling tower costs 7.9% more to operate than the evaporative condenser; whereas, the air-cooled condenser costs 22.6% more. The wattage consumption is decreased in accordance with the percentage noted from the manufacturer's catalog.

(Continued on next page)

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Water Savers--

(Continued from preceding page)

"This comparison will no doubt be somewhat surprising, because it is generally considered that an air-cooled condenser operating at lower than design conditions will show a considerable gain over other water-saving devices and that, of course, is not necessarily the case, as shown in this comparison.

At Higher Ambient

"It was thought proper to see what would happen if we selected and operated the equipment at higher than ambient conditions, and for this we have Fig. 4. Here you will note that we have selected for 100° ambient, 20° suction, and 78° W.B. The basic change in this selection is, namely, that we have used an oversized air-cooled condenser, because if we didn't, it wouldn't be a fair comparison for the air-cooled unit.

"If we had selected and used the same condenser as we used for the 90° ambient, we would have had 130° head with a pressure of 180 lbs., approximately, and the comparison would be poor. We have selected a 50% larger air-cooled condenser with three ⅙-hp. fan motors. It is obvious that since the wet bulb remains the same, the evap and tower selection would remain the same.

In this comparison, as shown in Fig. 4, note that even with the oversized condenser, the air-cooled unit still has an operating cost 22% greater than the evap and, of course, the tower would still be 7% greater than the evap.

With Larger Condenser

"Next, we thought it would be interesting to see what would happen if we operated under standard catalog conditions of 90° ambient, 20° suction, and 78° W.B. by using a 50% oversized air-cooled condenser. For results with these conditions refer to Fig. 5.

"Note the capacity increase of the air-cooled condenser to 50,000 B.t.u. per hr. and, of course, there is less total horsepower consumed by the air-cooled unit due to the lower head pressure, although we would be using three ⅙-hp. fan motors on the air-cooled condenser instead of two.

"This is the most favorable comparison for the air-cooled condenser and you will note that it cost 10.2% more to operate the air-cooled condenser than the evap, with the tower comparison remaining the same as before. This is obviously the most favorable comparison for the use of an air-cooled condenser and is the most important point to be made for the air-cooled unit. In other words, air-cooled condensers should be oversized.

"Now, let's take a look at the approximate annual operating costs of the 5-hp. unit under the varying operating conditions shown in the previous figures. (Fig. 6.) To obtain these figures, we assumed a requirement of 208,000,000 B.t.u., which figure was arrived at by assuming 4,000 hours of operation with a 52,000 B.t.u. per hr. machine.

"In the comparison on conditions (A and B) the tower costs approximately $30 a year more to operate than the evap and the air-cooled condenser approximately $70 more per year. On condition (C) you will note that the tower operation is about $30 per year over the evap and the air-cooled condenser is approximately $83 per year over the evap.

"In the final comparison of standard design conditions with an oversized air-cooled condenser, the tower still, of course, costs approximately $30 per year more; whereas, the air-cooled condenser costs approximately $34 per year more.

"It is obvious from this comparison that it costs more money theoretically from a current and water consumption standpoint to operate a unit with a tower or air-cooled condenser but, of course, we must remember that this is operating cost comparison, only.

How Much Maintenance?

"The most debatable subject of all on the comparison of water-saving devices—and a very important one—is the question of maintenance. There is no question that the maintenance of an evap or tower may be more than it would be on an air-cooled condenser. Cleaning of the evap and the tower is a problem, but there has been considerable improvement due to better methods and better knowledge of equipment and, particularly, with better preventive maintenance.

"It is our belief that recent designs of towers and evaps with pan-type distribution have helped considerably to solve maintenance problems as regards scaling, and the like.

"The problem in making a fair comparison (when including maintenance) of the three types of water-cooling devices is simply the question of whether or not the operating savings on an evap offsets the additional maintenance cost and, again, in our opinion, this would depend largely on the job. On the basis of the figures, the tower makes a poor showing economically, but there are unquestionably other factors involved when considering a tower.

"There are other problems outside of maintenance on the various types of water-saving devices that warrant some further consideration. The main problem stems from the question of winter operation. As far as summer operation is concerned, evaps and towers, in general, carry through best when presented with operating conditions above design condi-

(Concluded on next page)

Fig. 2—Comparison of Water-Saving Equipment

90° Ambient, 20° Suction, 78° W.B.—Operating Conditions (A)

5-Hp. Unit	B.t.u./hr.	Condensing Pressure (Ps.i.)	Total Hp.	Power Cost Per Hr. (Cents)	Water Use (G.p.h.)	Water Cost (Cents)	Total Operating Cost/Hr. (Cents)	Total Oper. Cost/Ton Per Hr. (Cents)	% Comparison
With Evap. Cond...	52,000	126	5.292	10.584	19.5	.005	10.589	2.444	100.0
With Cooling Tower	52,000	126	5.667	11.330	19.5	.005	11.335	2.616	107.0
With Air-Cooled Cond. Standard ..	46,800	157	5.533	11.066	....	....	11.066	2.837	118.4

NOTES: (1) Wattage consumption on motor of air-cooled unit increased 4%.
(2) Power consumption based on 1 kw. per hp.
(3) Power cost based on $.02 per kw.
(4) Water cost based on $.20 per 100 cu. ft.
(5) Water consumption based on 5% of 1.5 g.p.m. per ton.
(6) Both evap. and tower have propeller fans.

Fig. 3—Comparison of Water-Saving Equipment

75° Ambient, 20° Suction, 65° W.B.—Operating Conditions (B)

5-Hp. Unit	B.t.u./hr.	Condensing Pressure (Ps.i.)	Total Hp.	Power Cost Per Hr. (Cents)	Water Use (G.p.h.)	Water Cost (Cents)	Total Operating Cost/Hr. (Cents)	Total Oper. Cost/Ton Per Hr. (Cents)	% Comparison
With Evap. Cond...	57,500	100	4.747	9.494	20.9	.006	9.500	1.983	100.0
With Cooling Tower	57,500	100	5.122	10.244	20.9	.006	10.250	2.139	107.9
With Air-Cooled Cond. Standard ..	51,900	126	5.143	10.286	....	....	10.286	2.378	122.6

NOTES: (1) Wattage consumption of motors decreased as follows:
With evaporative condenser 10.9%.
With cooling tower 10.9%
With air-cooled condenser 3.8%
(2) Power consumption based on 1 kw. per hp.
(3) Power cost based on $.02 per kw.
(4) Water cost based on $.20 per 100 cu. ft.
(5) Water consumption based on 5% of 1.5 g.p.m. per ton.
(6) Both evap. and tower have propeller fans.

Fig. 4—Comparison of Water-Saving Equipment

100° Ambient, 20° Suction, 78° W.B.—Operating Conditions (C)

5-Hp. Unit	B.t.u./hr.	Condensing Pressure (Ps.i.)	Total Hp.	Power Cost Per Hr. (Cents)	Water Use (G.p.h.)	Water Cost (Cents)	Total Operating Cost/Hr. (Cents)	Total Oper. Cost/Ton Per Hr. (Cents)	% Comparison
With Evap. Cond...	52,000	126	5.292	10.584	19.5	.005	10.589	2.444	100.0
With Cooling Tower	52,000	126	5.667	11.330	19.5	.005	11.335	2.616	107.0
With Air-Cooled Cond. Oversized .	46,800	157	5.700	11.400	....	....	11.400	2.923	122.0

NOTES: Conditions and considerations same as for "Notes" in Fig. 2.

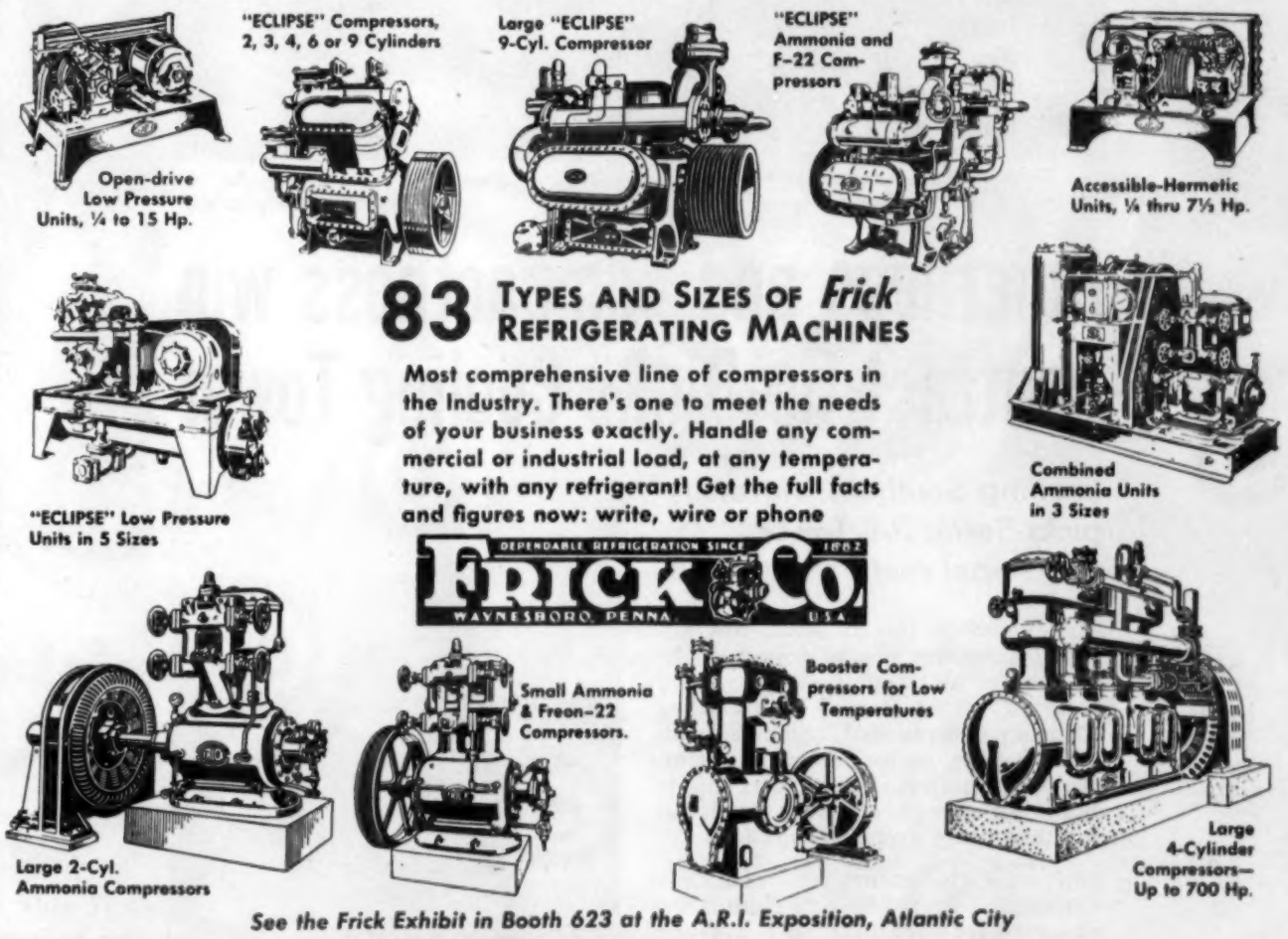
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Fig. 5—Comparison of Water-Saving Equipment

90° Ambient, 20° Suction, 78° W.B.—Operating Conditions (D)

5-Hp. Unit	B.t.u./hr.	Condensing Pressure (Ps.i.)	Total Hp.	Power Cost Per Hr. (Cents)	Water Use (G.p.h.)	Water Cost (Cents)	Total Operating Cost/Hr. (Cents)	Total Oper. Cost/Ton Per Hr. (Cents)	% Comparison
With Evap. Cond...	52,000	126	5.292	10.584	19.5	.005	10.589	2.444	100.0
With Cooling Tower	52,000	126	5.667	11.330	19.5	.005	11.335	2.616	107.0
With Air-Cooled Cond. Oversized .	50,000	136	5.500	11.000	....	....	11.000	2.640	110.2

NOTES: (1) Power consumption based on 1 kw. per hp.
(2) Power cost based on $.02 per kw.
(3) Water cost based on $.20 per 100 cu. ft.
(4) Water consumption based on 5% of 1.5 g.p.m. per ton.
(5) Both evap. and tower have propeller fans.

Fig. 6—Comparison of Annual Operating Cost

To Produce 208,000,000 B.t.u.

5-Hp. Unit	Based on Operating Conditions (A)	Dollar Diff. To Evap.	Based on Operating Conditions (B)	Dollar Diff. To Evap.	Based on Operating Conditions (C)	Dollar Diff. To Evap.	Based on Operating Conditions (D)	Dollar Diff. To Evap.
With Evap. Cond...	423.56	....	343.65	....	423.56	....	423.56	....
With Cooling Tower	543.40	29.84	370.78	27.23	453.40	29.84	453.40	29.84
With Air-Cooled Condenser	491.64	68.08	412.26	68.61	506.67	83.11	457.60	34.04

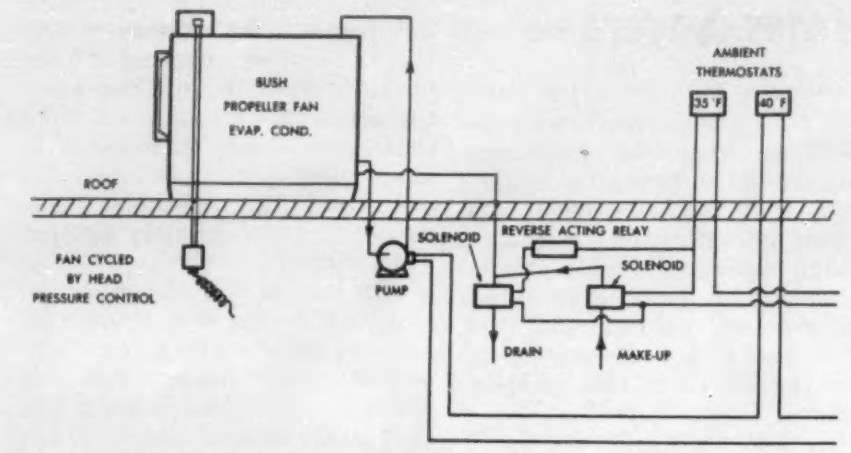


FIG. 7. STANDARD METHOD of operating an evaporative condenser under winter conditions and outdoors. Fan is cycled by head pressure control.

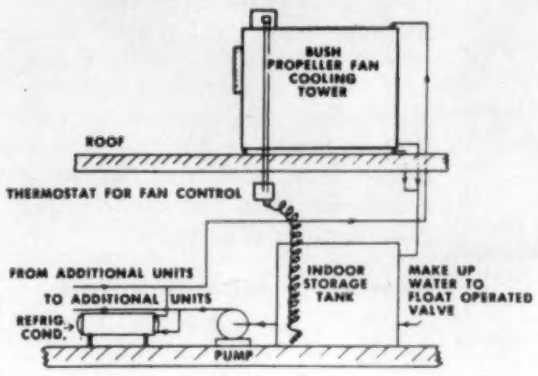


FIG. 8. HOOKUP recommended for operation of a cooling tower for winter operation. Overflow standpipe is removed and overflow and drain is connected to an indoor tank.

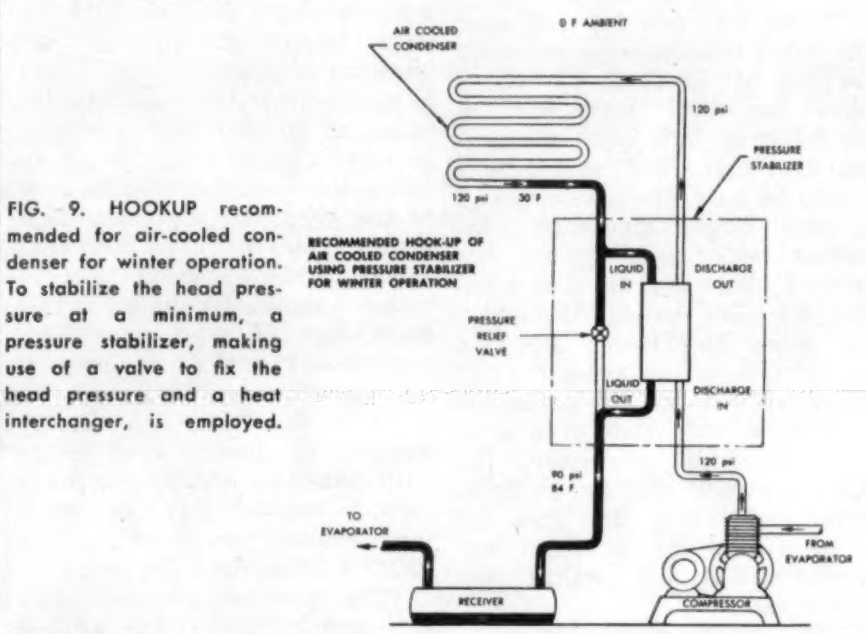
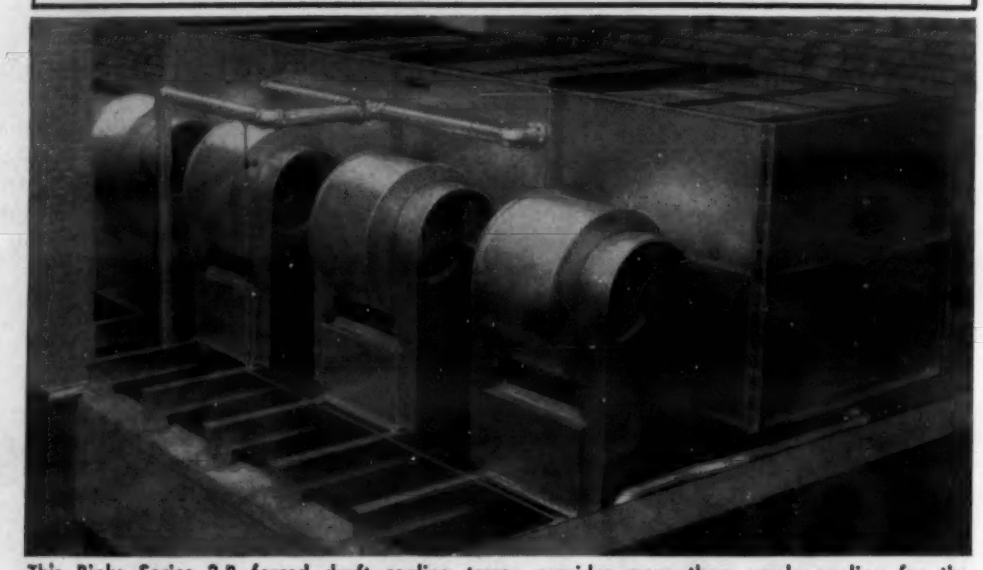


FIG. 9. HOOKUP recommended for air-cooled condenser for winter operation. To stabilize the head pressure at a minimum, a pressure stabilizer, making use of a valve to fix the head pressure and a heat interchanger, is employed.

BINKS cooling systems

COOLING TOWER NEWS



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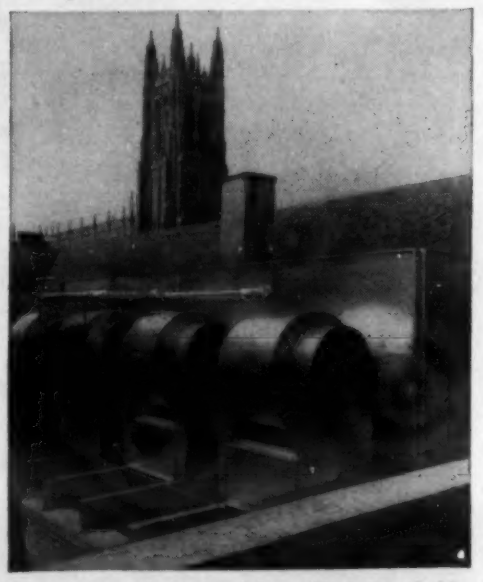

The compact design and low silhouette of this tower keeps it out of sight from street level.

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Water Savers--

(Concluded from preceding page)

tions. The air-cooled condenser can be in trouble when it is hit with operating conditions above design conditions because it means lower capacity and higher heads.

For Winter Operation

"On the question of winter operation, it is worthwhile to review the problems briefly. Fig. 7 shows a standard recommended method of operating an evaporative condenser under winter conditions and outdoors. We also strongly recommend dry operation in the winter, and it is one of the reasons why we have spent so much time and money to develop a satisfactory finned tube evap.

"Fig. 8 is a more or less standard recommended hookup for the operation of a cooling tower outside and during the winter. There is nothing unusual about this hookup.

"Again, the air-cooled condenser presents a different problem in winter operation. Fig. 9 shows a recommended winter hookup. It is obvious that with an air-cooled condenser you can run very low head pressures, so low that the refrigeration system would not perform well.

"It is therefore necessary, under these conditions, to consider some means to stabilize the head pressure at a minimum, and Fig. 9 illustrates the use of a pressure stabilizer system to accomplish this. The pressure stabilizer is a very simple system, using a valve to fix the head pressure and a heat interchanger between the liquid line from the condenser to the receiver and the hot-gas line, whereby sufficient heat is applied to the liquid from the condenser to offset the excessive subcooling.

"There is sufficient pressure drop designed into the liquid circuit of the heat interchanger, so that when the head pressure control valve is open, there is no flow through the heat interchanger and, therefore, no reverse work during the normal summer refrigeration cycle.

Some Conclusions Drawn

"From all of this analysis, it seems logical that we could conclude the following:

"1. The particular job will have much to do with the correct selection.

"2. The evaporative condenser is still, no doubt, the most efficient water-saving device.

"3. The tower is not economically sound, but must be given credit for other features, such as:

a. Allows the use of factory sealed condensing units.

b. Allows flexibility in installation and hookup.

c. Permits the installation to be more of a plumbing job.

"4. The use of remote air-cooled condensers is sound, provided they are oversized and selected to maintain 110° condensing, which means a 50% larger condenser than for standard conditions."

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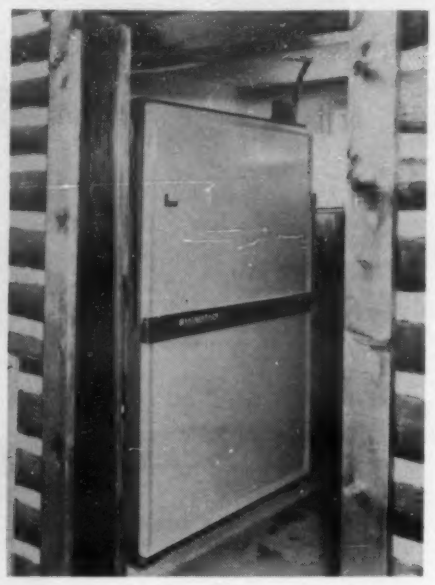

PICTURED at right is a General Electric Co. Form "C" Weathertron heat pump unit which cools and heats the Margate City, N. J. home shown above. Operating on a year-round basis, heat pumps are being used with greater frequency in the colder climates.

HEAT PUMP *(Questions and Answers)*

Brundage Tells of Heat Pump Progress, Expectations— Cost, Safety, Utilities Interest, Use In Cold Areas

(An interview with H. M. Brundage, General Manager of G-E's Weathertron Dept.)

1.—What kind of progress did heat pump sales show in 1955?

It is probable that the total installations exceeded manufacturers' optimistic expectations. We believe there were as many units installed in 1955 as were in existence prior to 1955. General Electric does not give out information on its own production and sales; however, we do state that in 1955 we will have produced and shipped more than twice as much as we did in 1954.

The rate of growth of the heat pump business is naturally greater than the growth rate of combustion electric year-round air conditioning. It is being applied in wider geographical areas, and increased public acceptance is affecting the total substantially.

We predict the sales in 1956 will substantially exceed twice the 1955 volume. We further believe that the 1965 sales will exceed 300,000 units per year, and that as of that date there will be 1,250,000 or more heat pumps in operation—both commercial and residential.

2.—Was there a greater emphasis on residential or commercial applications this year as compared with former years?

While there was ample evidence of increased residential usage of heat pumps during 1955, it is difficult to say that there was a major change in relationship between the residential and commercial markets during the year.

Residential applications hold greater volume opportunities in future years than commercial installations, but commercial applications are easier to sell in these early years. The result is that residential currently constitutes about 60% of the market, while commercial is 40%. This, on a national-average basis varies with the geographical locations.

Because of the greater acceptance of central plant residential summer cooling in the South, the residential percentage is likely to be somewhat higher. In the more northern territory, where residential cooling has not yet received the same acceptance, the residential percentage may be as low as 25%. Cooling for commercial application has more of an "economic" appeal to the purchaser, whereas residential is sold on a "comfort" basis.

3.—Are more dealer contractors becoming interested in handling the heat pump? Have they indicated the reason for their increased interest?

To the first question, the answer is definitely "yes." Progressive dealers are indicating increased interest in heat pumps even at this early stage. They seem to realize that enough heat pumps have been installed to prove their practicality and economy, and the glamor and uniqueness of the product inspires confidence for its future growth.

A second contributing reason for their increased interest is due to less competition in this field. Combustion electric systems offered by a large number of well-known, stable manufacturers leaves little opportunity for original selling effort, and the sale often depends upon price. The opportunities to sell heat pumps are enhanced by absence of this kind of competition at this stage of its development.

Many of the more progressive dealers are becoming sold on the heat pump idea due to the interest and promotion of electric utilities, and they want to get in on the ground floor so that they can grow with the business.

It should be noted that, in general, the average available dealer is not well equipped in this product field, and therefore requires substantial training and education. The commonly accepted standards of application techniques are inadequate for the heat pump.

A new and different philosophy of salesmanship is needed to properly develop this business. It is not just a substitute for ordinary heating and cooling. It is a part of the all-electric living philosophy.

4.—What sort of a job of educating the public is needed to spur heat pump sales?

This is a very broad question, but we believe the first and most important element is acquainting and educating those who influence buying habits. These influences are the electric utilities, the architects, the contractors, the builders, the consulting engineers, the realtors, and the bankers. This is a slow educational job, but one which must be well done before public acceptance on a broad scale can be expected.

5.—Has any formula been developed which shows at what rate for electric power the heat pump becomes competitive with gas-fired heating equipment using gas at a certain rate in

(Continued on next page)

See the Latest Advances in
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VISIT BOOTH 112
at the Exposition

DFN TRADEMARK

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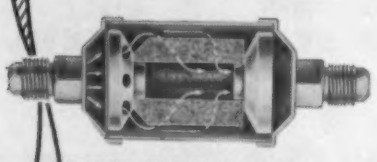
FACTORY-SEALED DRIERS


PERMACLEAN FILTERS

★ See actual demonstrations
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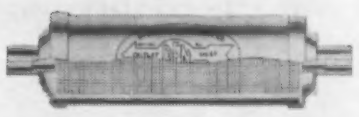
STRAINERS—"Y", Angle, Pencil, Sealed

Plus a complete line of Accessories.

DFN TRADE MARK Since 1925
The McIntire Company, Livingston, N. J.
DRIERS • FILTERS • STRAINERS

For more information about products advertised on this page use Information Center, page 54.

Heat Pumps--

(Continued from preceding page)

terms of operating costs?

There is no specific answer to this question without involving so many qualifying factors as to make the conclusion of no value. Because the heat pump is a year-round device, its cost of operation is substantially influenced by the relationship between the amount of power required for heating as compared with cooling.

The difference in heat requirements between Chicago and Houston, Texas, translated into terms of kilowatt hours does not even out when totaled with summer cooling. It is, however, a fact that the year-round operating cost in many areas, where an acceptable amount of summer cooling is required, will be reasonably competitive on existing rate structures. There are, of course, exceptions where uncommonly low natural gas costs are available, or where electric rates are relatively high.

The fact that heat pumps are currently being sold in fairly appreciable quantities in about 30 out of the 48 states is self-evident proof that the economy of operating costs are acceptable to the buyer.

Referring to the residential application, the all-electric approach has definite and tangible benefits to the homeowner, for which he is willing to pay something. Such items as comfort, flexibility, cleanliness, convenience, and safety are just a few.

The heat pump is recognized as a wise investment because the homeowner is providing the most modern equipment which will keep the home modern and thereby protect the investment. No one can evaluate in dollars and cents the element of safety. No man can put a dollar sign in front of safety for himself and his wife and children.

In the commercial market there are little if any competitive problems of operating cost with existing electric rates. Operating costs do not have to be equal to be competitive. It will continue to be sold on its advantages while technical improvements are being developed to further improve its cost of operation.

6.—What type of effort should heat pump manufacturers and dealers employ to obtain better rate structures from electric utilities for users of the heat pump?

This question indicates a misconception of the basic problem. We feel that electric utilities have their own problems in establishing rates commensurate with the type of loads and the cost to serve their customers. No heat pump manufacturer and certainly not any group of dealers have available to them the facts needed to recommend changes in electric rate structures.

Surely all manufacturers and dealers would like lower rates, and it is their duty to supply local utilities with such facts as they need to study the load characteristics of the heat pump in the all-electric home; but it would be highly presumptuous of them to enter into a campaign for lower rates without full knowledge of all the facts on the economics of the utility industry and these facts are just not available to heat pump manufacturers and their dealers.

In the interest of serving the people at the lowest possible rates, utilities are anxious to reduce their rates to encourage additional power consumption whenever the economics prove such rate changes justified.

7.—What should be the electric utility's interest in the heat pump?

POINTING TO a copy of what is believed to be the first full-page, four-color heat pump ad in a national publication is H. M. Brundage, general manager of G-E's Weathertron Dept. who tells of heat pump progress and expectations in questions and answers in accompanying article.

There are four principal reasons why the electric utility should be vitally interested in the heat pump.

(1) A heat pump will use three to five times as many kilowatt hours as all other electrical appliances in the home put together.

(2) The heat pump gives a substantial year-round load.

(3) The heat pump offsets to a major extent the peak-load problem which every electric utility is or will be facing where summer cooling is receiving large public acceptance.

(4) The heat pump guarantees, almost without exception, the all-electric home, which means that it assures the use of other major electrical appliances, such as electric ranges, electric water heaters, electric dryers, etc.

In no other way, or at so little expenditure of effort, can the utility guaranty to itself the acceptance of the all-electric home. Only then can the utility know that no other competitive fuel will be used in the home for any purpose.

8.—Do current heat pump models overcome one-time objections of excessive noise?

Excessive noise of heat pumps has never been a problem. Noise, however, has always been somewhat of a problem to the whole air conditioning industry, but heat pumps are no worse offenders than are other central-plant cooling units, and not nearly as much of a problem as would be the case with a group of room or window air conditioners. Heat pumps are generally quieter than packaged central units.

Education in recent years of the warm air heat trade has assured much quieter installations generally by improved techniques and sound-deadening applications. With increased air

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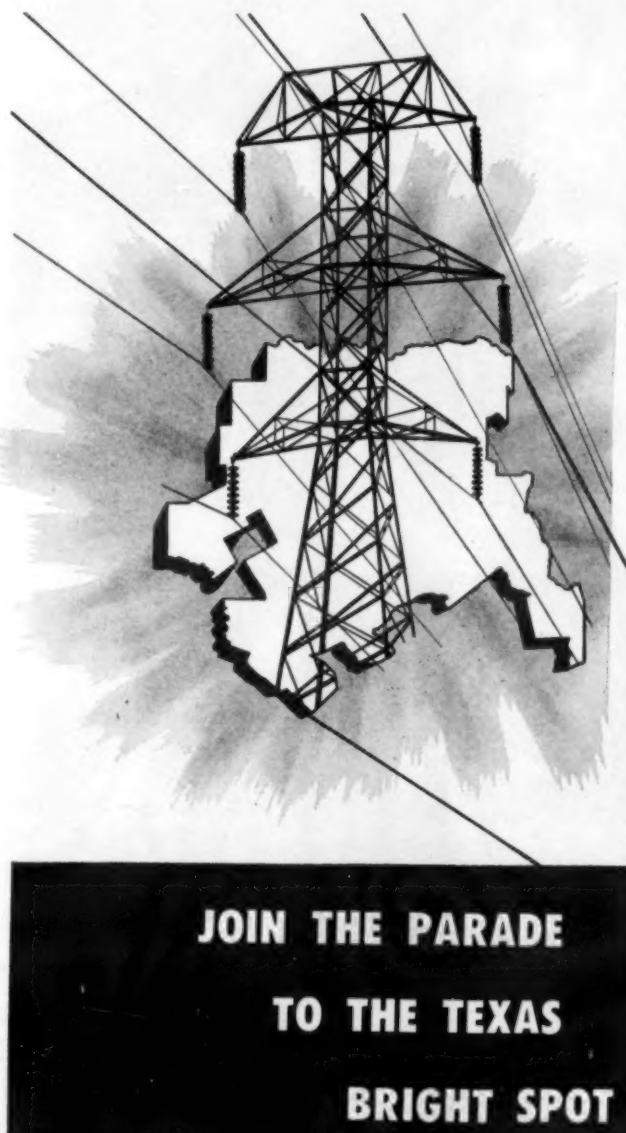


Congratulations to the Air Conditioning Industry on another record year from still the #1 MARKET AREA!

JOIN THE PARADE TO THE TEXAS BRIGHT SPOT CENTER OF MORE THAN HALF THE TOTAL U. S. MARKET FOR UNIT AIR CONDITIONERS

After extensive research our Industrial Development Department has completed its second study of unit air conditioning sales and distribution throughout the U. S. Hailed as one of the most informative reports of its kind ever compiled, it indicates that a manufacturer can serve over half of his total market quicker, easier and more economically from a plant located in the Texas "Bright Spot" than from any other region in the U. S. See our industrial consultant at the Show, at the Hotel Chalfonte, or write our Industrial Development Department for facts concerning the economic advantages that await the Texas manufacturers of Air Conditioning Equipment.

TEXAS POWER & LIGHT COMPANY
GENERAL OFFICES, DALLAS, TEXAS

Heat Pumps--

(Concluded from preceding page)

flows needed for summer cooling, trade practices are being improved to minimize air noises. Improved grilles are contributing their part.

The recent test installations in Austin, Texas have indicated that this is an over-all industry problem rather than identified specifically with the heat pump. Basically there is no appreciable difference in noise level of a heat pump, whether it is heating or cooling.

9.—Will the safety factor be emphasized in the heat pump merchandising?

Unquestionably. The safety of all-electric living is something which is pretty generally accepted by the American public. We are all well aware that we will have electricity with us for the rest of our lives, and for generations to come. It, of necessity, must be safe. Why add an additional hazard to the house—why add gas or oil hazards to the house if you don't have to?

THESE ALL-ELECTRIC WT66C2 Weathertrons provide year-round air conditioning of a Cullman, Ala. cafe, handling three separate zones independently and automatically.

10.—How will ease of installation in heat pump jobs be important to the dealer and consumer?

Primarily in lower first cost and increased reliability. Fewer trades are involved in installing heat pumps—the factory assembly of a complete unit is more practical, consequently there is less chance for difficulties, less need for service reserves and, generally speaking, the consumer will benefit by a product which will probably last much longer without maintenance and care.

11.—Are present models of heat pumps proving successful for heating in areas where there are long stretches of below 32° weather?

Definitely yes. At the present time, General Electric is distributing heat pumps in the more northerly climates, such as Hartford, Conn., Detroit, and Chicago, which have long stretches of weather below 32°.

Actually and fundamentally, the heat pump can operate satisfactorily well below zero. There is nothing impractical or impossible about designing heat pumps for use at minus 50°, for example.

The actual sizing of the unit has to increase to compensate for its drop-off in capacity as the outdoor temperature drops. This sizing requires technical changes in the product itself for greatest economy—just oversizing a unit which is designed for the milder climates would cost quite a bit in first cost.

At the present time that is roughly where the industry stands—our present products are not specifically designed for North Dakota and Minnesota and, we do not try to apply them there. When the year-round air conditioning market in the more northerly climate becomes of significant volume to justify establishment of dealers, then of course we will have products which are suitable for those areas.

There is nothing mysterious about this at all—there is nothing fundamental in the design or operation of the heat pump that will hold us back from this. No hurdles have to be undertaken at all. It is a question of demands.

In addition to the questions asked, it is probably pertinent to comment on one of the basic problems facing our industry today, and that is the lack of qualified dealers.

It is not that there are not enough people wanting to handle heat pumps—it is the lack of dealers with the proper concept of marketing the product—dealers who will understand that they are not selling a piece of metal with special gimmicks and gadgets which are comparable or better than competition but they are selling a better way of life.

This same problem is experienced in the engineering or technical end of the game. Dealers with trade experience in the heating and ventilating trade, or for that matter, in the air conditioning trade, are inclined to try and fit the heat pump into their way of engineering and laying out jobs. This just does not work.

The heat pump has flexibility which not only permits new techniques of application and installation but requires them if installations are to be practical and economical.

For example, the average heating plant tends to want to be centrally located in the building so that the ductwork will be at the minimum. The average Weathertron installation tends to want to be outside the house, say in the garage, or in the attic, or in a breezeway.

This philosophy or this understanding of application is hard to develop and, by and large, we find that because dealers in the trade today are making many installations of conventional equipment to every heat pump installation, they do not readily absorb the necessary know-how to properly sell, apply, and install heat pumps.

In other words, we need to develop more qualified dealers—dealers willing to take a new look at an old business and do things in different ways than they have ever done them before.

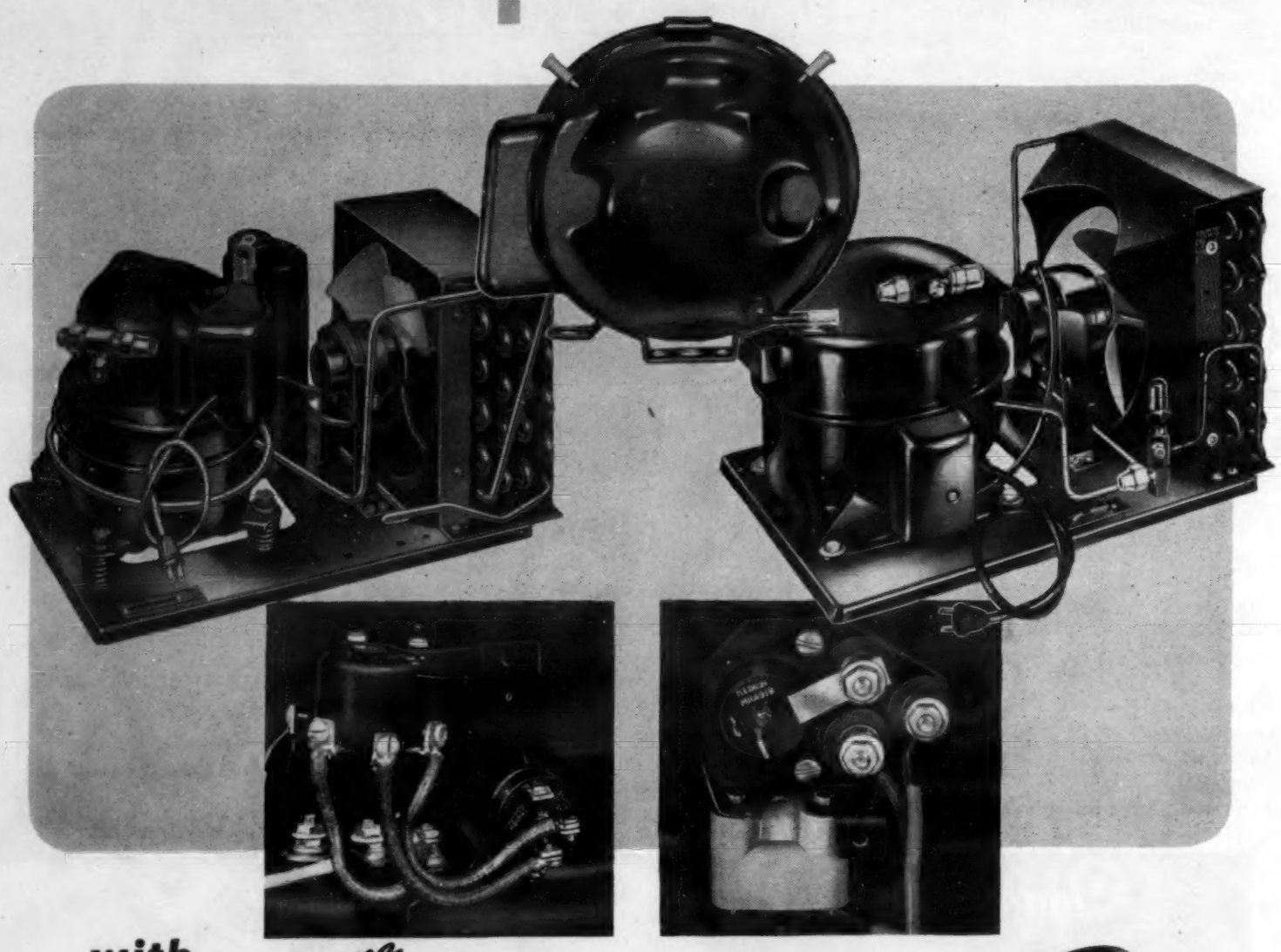
Possibly, we need a new kind of dealer entirely. Maybe he won't be the kind that is currently in the heating, ventilating, and air conditioning trade, but one who has grown up in an electrical contracting or appliance merchandising trade with a fresh viewpoint uninhibited by past practices and capable of aggressive marketing techniques.

Trane Names Karr

LA CROSSE, Wis.—Appointment of John F. Karr as manager of market research has been announced by The Trane Co.

Karr has previously been engaged in market research in Detroit. He was graduated from Wayne university.

TECUMSEH *provides an...* **Extra Margin of Performance Protection**



with **KLIXON** *Dome-Mounted* **PROTECTORS and Starting Relays**

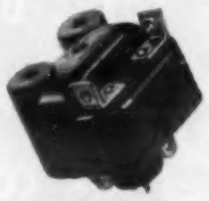
Tecumseh Hermetics, original equipment on 31% of the household refrigerators*, 78% of the room air conditioners*, and 67% of the freezers*, made in U. S. A. are noted for their dependability of operation and freedom from service problems.

To help maintain this enviable reputation Tecumseh Products Company uses Klixon Dome-Mounted Protectors and Klixon Motor Starting Relays on many of these hermetically sealed compressors. Experience has proved that Klixon Protectors keep compressors working under the most difficult operating conditions, yet dependably safeguard the compressor motor against burnouts from overheating. Klixon Motor Starting Relays assure positive starts, and are equally reliable.

Manufacturers of hermetic or open type compressors, or complete refrigeration equipment, are urged to find out more about these fine Klixon products.

*As reported by Electrical Merchandising for 1954

KLIXON DOME-MOUNTED PROTECTORS provide the ultimate in hermetic compressor motor protection. They keep compressors working under the toughest conditions, yet prevent motors from burning out . . . help stop food spoilage . . . reduce costly repairs and replacements.



KLIXON MOTOR STARTING RELAYS start motors surely. Their positive action and long life eliminate starting troubles.

METALS & CONTROLS CORPORATION
SPENCER THERMOSTAT DIVISION
2411 FOREST STREET, ATTLEBORO, MASS.

KLIXON

For more information about products advertised on this page use Information Center, page 54.

MODERN refrigeration equipment can be found in the reproduction of a pre-Civil War southern mansion pictured above, located in Disneyland, Anaheim, Calif. In moving through Disneyland, you learn the "mansion" is really the Chicken Plantation, a restaurant, and inside you find Refrigeration Engineering, Inc. "Recold" units providing refrigeration protection to foods.

INSTALLED beneath this marble counter in the Carnation Ice Cream Parlor at Disneyland is the latest in soda fountain and refrigeration equipment. Shown here is the Gay Nineties ice cream parlor which is operated in Disneyland by Fresh Milk and Ice Div. of Southern Calif., Carnation Co. Genuine old fashioned wire back chairs and tables, along with tufted leather seats and island benches around column have been reproduced. Carnation's stainless steel soda fountain gives all an opportunity to compare old and most modern. There are two sets of draft arms; three separate temperature controls, one for holding ice cream at proper consistency, one for refrigeration of syrups and crushed fruits and bottled milk storage compartment, the other for refrigeration of plain and soda water.

Modern Refrigeration Serves Ice Cream Parlor, Restaurant In Disneyland

ANAHEIM, Calif. — Viewed from a passing stern wheel river boat, a pre-Civil War southern mansion in Disneyland hardly looks like a place where you'd expect to find modern refrigeration equipment.

Buy you find that the "mansion" is the Chicken Plantation, a restaurant operated by the Red Wagon Co. And inside you find "Recold" coils supplying refrigeration.

Among other places in Disneyland served by Recold coils are the Red Wagon Inn and Swift & Co.'s refrigerated warehouse. Refrigeration Engineering, Inc. is the manufacturer; Thermal-air, the contractor. Both are Los Angeles firms.

Pictured (see photo) is a Recold "Supreme" in the Chicken Plantation. This is a high temperature coil providing distribution of air at low velocity with high humidity.

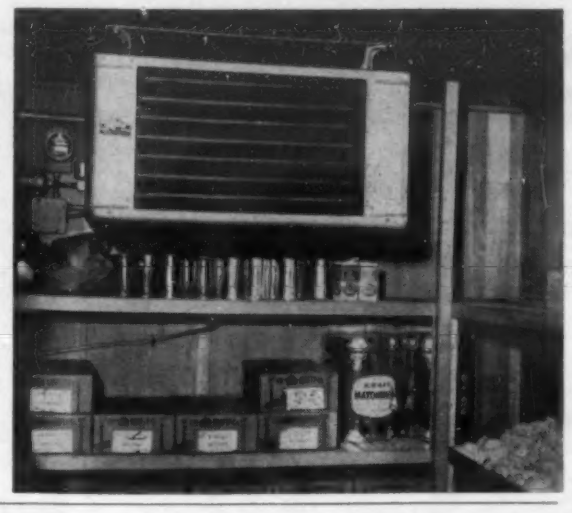
Air is drawn in through four sides of the coil and discharged against a cone in the top in a radius of 360°. The air flows along the top and down the walls of the cooler, "providing full refrigeration protection."

Also used in Disneyland are Recold automatic "Water Defrost" coils. Defrosting is accomplished by means of ordinary tap water. The tap water action in melting frost from the coil is so fast that product freezing continues during the process, according to the manufacturer.

Jordon Appoints Riley In Detroit

PHILADELPHIA—T. J. Riley and Associates, Detroit, has been named representative for the domestic line of Jordon Refrigerator Co., Harry Fogel, vice president in charge of sales, announced.

The firm will cover Michigan and the following counties in Ohio: Hancock, Allen, Putnam, Wyandotte, Erie, Huron, Logan, Defiance, Fulton, Henry, Lucas, Ottawa, Sandusky, Seneca, Williams, and Wood.



THIS photograph shows a Recold "Supreme" high temperature coil providing air distribution at low velocity with high humidity in the Chicken Plantation at Disneyland. Air is drawn in through four sides of the coil and discharged against a cone in the top in a radius of 60°. Air flows along the top and down the walls of the cooler, providing refrigeration protection.

Gibson Names Suazo Export Sales Mgr.

GREENVILLE, Mich. — Appointment of Robert Suazo as manager of export sales for Gibson Refrigerator Co. in South and Central America was announced recently by Arthur R. Cline, Jr., manager of the firm's International Div.

Cline said Suazo's appointment is part of an expansion of the International Div.'s sales organization, following the recent retirement of Charles I. Horowitz who had been Gibson's export manager for 26 years.

Suazo has had 10 years' experience in foreign sales. For the past two years he has been export manager for Replogle Globes, Inc., Chicago.

American Air Filter Names Smith to Post

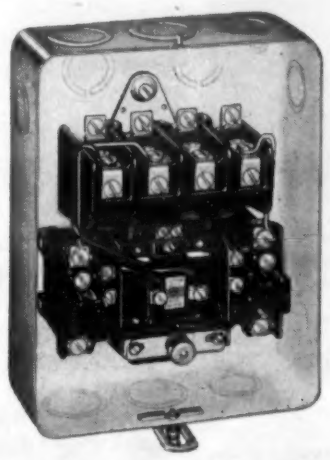
LOUISVILLE, Ky.—Appointment of Richard W. Smith as director of advertising of American Air Filter Co. has been announced by William M. Reed, president.

Smith will be directly responsible for the advertising activities of all eight sales divisions of the company which includes air filters, dust control equipment, unit ventilators for schools, and a line of heating and ventilating equipment.

John McConnell will continue to serve as vice president in charge of advertising.

Church Bldg. Gets Air Cooling

WEST HELENA, Ark.—Cone-Stowers, Searcy, Ark., was low bidder with $34,845 for air conditioning the Educational building of Helena Baptist church.



Overload protection is provided by two accurate and dependable overload relays.

TROUBLE FREE STARTERS for Squirrel Cage Motors

Reliability is the first requirement of air-conditioning controls. That's why Allen-Bradley Bulletin 709 solenoid starters are so popular with air-conditioning engineers. Their silver alloy, double break contacts require no maintenance attention. Send for Bulletin 709 and also Bulletin 836-837, today.

Allen-Bradley Co.
1313 S. First St., Milwaukee 4, Wis.
In Canada—
Allen-Bradley Canada Ltd., Galt, Ont.

ALLEN-BRADLEY
QUALITY
SOLENOID MOTOR CONTROL
A-B Quality

Supplying **MILLIONS** of Parts to The Industry Annually

**Originator of the Widely Adopted Wire Cloth Silica Gel Bag For Accumulator-Driers*

STRAINERS DRIERS
ACCUMULATORS
ACCUMULATOR-DRIERS
RECEIVER-DRIERS
CAPILLARY-STRAINERS
RECEIVERS
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Our Facilities and Experience Are At Your Disposal to Assist You In Any Way Possible

REFRIGERATION RESEARCH
BRIGHTON, MICHIGAN
BRANCH FACTORY — — GREGORY, MICHIGAN
*PATENTED AND PATENTS APPLIED FOR

Everything is NEW at IGLOO
BOOTH 211
9th EXPOSITION, AIR-CONDITIONING and REFRIGERATION INDUSTRY, ATLANTIC CITY, N.J.
FRIGID IGLOO MANUFACTURING CORP. 360 ASHBURTON AVENUE YONKERS 2, NEW YORK

Servicing Automobile Air Conditioners

BY C. DALE MERICLE

Beginning with this instalment we present the ninth different make of automobile air conditioner to be discussed in this series—that supplied by Chevrolet as a factory-installed accessory.

This series, which started in the June 13, 1955 issue of AIR CONDITIONING & REFRIGERATION NEWS, has already covered the following makes: A.R.A., Frigikar, Automotive Air Conditioning, Pivot, Novi, Oldsmobile, Buick, and Pontiac, in that order.

FIG. 1 shows the location of components in the Chevrolet 1955 front-end type air conditioner.

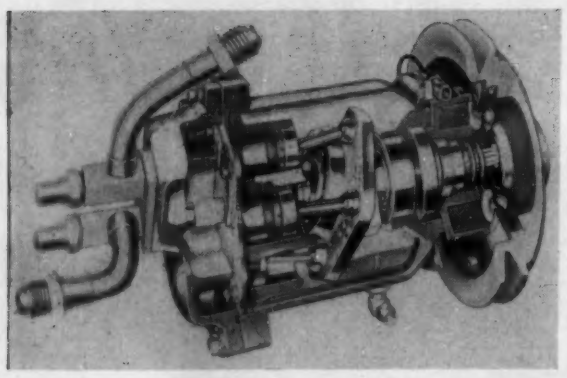


FIG. 2 is a cutaway of the Frigidaire five-cylinder compressor employed on the 1955 Chevrolet system.

CHEVROLET-1

Chevrolet Motor Div.
General Motors Corp.
Detroit 2, Mich.

DESCRIPTION

The air conditioning system introduced by Chevrolet as a factory or dealer-installed accessory on 1955 models is a front-end type of system. (See Fig. 1).

The evaporator is installed on the right side of the firewall and is part of the heater assembly. Conditioned air is delivered to the car interior through (1) outlet nozzles on the left and right sides of the dashboard, (2) the windshield defroster slots, (3) a floor distributor, or combinations of these.

Compressor mounts on the car engine and is driven through a magnetic clutch. Condenser is installed in front of the car radiator.

Refrigerant used is "Freon-12." The charge is 2½ lbs.

The Chevrolet refrigeration system differs from virtually all other automobile air conditioning systems in that it has no by-pass arrangement for "cycling" of refrigerating effect.

A thermostat controls cycling of the system by energizing or de-energizing the magnetic clutch as required. Thus, when no cooling is required, the compressor does not operate. In principle the system is similar to a domestic refrigerator and other conventional refrigeration and air conditioning systems.

Compressor

The Frigidaire five-cylinder, axial type, reciprocating compressor is employed in the Chevrolet system. See Fig. 2.

Suction and discharge service valves are on the back of the compressor opposite the pulley end. The discharge valve is above, and at right angles to, the suction service valve.

A pressure relief valve which opens at approximately 415 p.s.i.g. and closes at about 300 p.s.i.g., and an oil level test plug are provided in the Frigidaire compressor.

A magnetic clutch with built-in solenoid is used. See Fig. 3.

(To Be Continued)

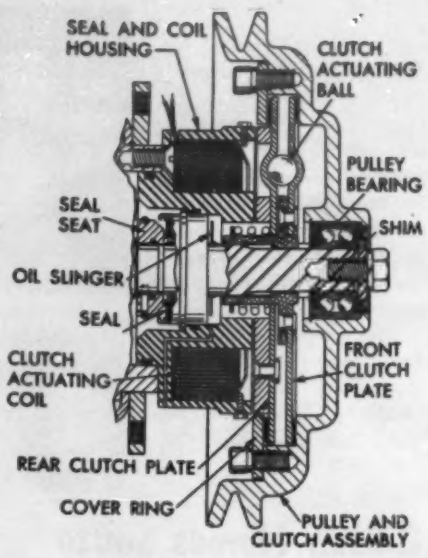


FIG. 3—Cross-section of compressor seal and "magnetic" clutch and pulley assembly of Chevrolet unit.

AIR CONDITIONING SALES ENGINEER

Age 25 - 35, to work from divisional sales office with well-established distributors handling complete line of packaged air conditioners for institutional, industrial and commercial applications.

Although training is available, prefer sales and application engineering experience with ability to survey installations.

Liberal salary with unusual opportunity for growth and advancement.

For local interview—your area—submit complete resume, in confidence, to—

PHILCO CORPORATION

ATTN.: G. B. FADDEN

Manager, SALARIED PERSONNEL

Philadelphia 34, Pa.

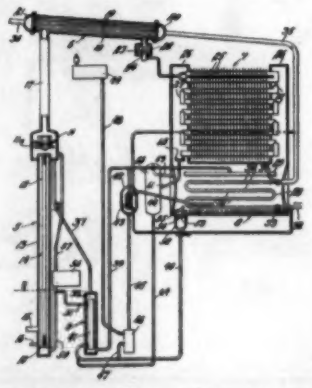
16 Surplus Home Air Conditioners
3-Tons — Water Cooled

Manufacturer will sell at sacrifice to close out stock of Home Unit business. Can be purchased completely assembled with or without compressor or as parts for assembly by buyer. Unit designed for full capacity and has been completely satisfactory. Write BOX A5381, Air Conditioning & Refrigeration News. 450 W. Fort St., Detroit 26, Mich.

PATENTS

Week of July 26 (Continued)

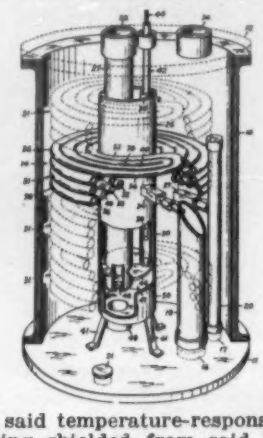
2,713,778. REFRIGERATION. Norton E. Berry, Newburgh, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application May 24, 1952, Serial No. 289,760. 10 Claims. (Cl. 62—119.)



1. In an absorption refrigeration system, a circuit for absorption solution having an ascending portion in which solution is lifted and a descending portion through which solution flows by gravity, a vapor liquid-lift in the ascending portion of the circuit, means for heating solution in the ascending portion of the circuit to expel refrigerant vapor, a standpipe connected to the ascending portion of the circuit for maintaining a hydrostatic reaction head of solution on the lift, the descending portion of the circuit being connected to the standpipe above the highest liquid level expected to occur therein during operation, and flow control means in the descending portion of the circuit for delivering absorption solution to the standpipe at a substantially constant rate, the liquid column in said standpipe automatically adjusting itself to the height required to lift the solution delivered thereto.

2,713,994. HEAT EXCHANGER. Henry W. Angelery, Englewood, N. J. Application May 3, 1950, Serial No. 159,695. 5 Claims. (Cl. 257—2.)

1. A heat exchanger comprising a tank for receiving liquid, a substantially vertical inlet tube having an open inner end within said tank to introduce cold liquid into said tank, an aspirator in said inlet tube for creating a zone of reduced pressure, an outlet to discharge liquid from said tank, a conduit spaced from said inlet tube having one end communicating with the tank and the other end communicating with the inlet pipe at said zone to induce flow of liquid from said tank through said conduit in response to flow of liquid through the inlet tube, means outside of said conduit and tube and within said tank for heating the liquid therein, and a temperature-responsive device within said conduit upstream of said zone in contact with the liquid in said conduit for regulating the heating



means, said temperature-responsive device being shielded from said heating means and the water in said tank by said conduit.

(To Be Continued)

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications $10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

POSITIONS WANTED

EXPERIENCED SALES and serviceman desires sales position with manufacturer of room and home air conditioners. Several years' experience calling on distributors in Southeastern states. Salary, commission and expenses or draw against commission. Resume and references on request. BOX A5396, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

ACE CABINET Co. has some very valuable territories open throughout the country for qualified men. Our employees know of this ad. Write to ACE CABINET CO., 721 E. 139th Street, New York, N. Y. or see us at the Show.

PROJECT ENGINEER to take complete charge of design, development and test of a line of packaged water chillers from 3 to 150 h.p. This is a permanent assignment in an expanding, nationally-known, Midwestern organization which offers real advancement opportunities. Please contact representatives at ACME INDUSTRIES booth ARI Show, Atlantic City, November 28 - December 1.

FIELD SERVICE representative position for Gulf States area open about January 1. Room air conditioner—freezer—refrigerator experience, willingness to travel, and ability to assist distributors with service training program are requisites. Send full particulars of background, experience, snapshot of yourself, and salary expected to Service Manager, AMANA REFRIGERATION, INC., Amana, Iowa.

AIR CONDITIONING sales engineer: We have an opening for an experienced sales engineer to contact established industrial and commercial accounts. You will join one of the nation's leading organizations in this field offering the finest working conditions and an opportunity for excellent earnings. Salary, plus expenses plus commission. You will be selling self-contained equipment for the Carrier distributor in the Philadelphia area. Contact Mr. E. Sederholm, PEIRCE-PHELPS, INC., 2000 N. 59th St., Philadelphia 31, Penna.

EXPERIENCED SALES engineer for wholesale and retail operation of long-established Carrier distributor and contracting operation in Arizona. Salary and commission arrangements to fit fast-expanding residential market. Send full particulars and references to P. O. BOX 5296, Tucson, Arizona. Replies strictly confidential.

FACTORY AGENTS and representatives wanted immediately for established competitive Midwest manufacturer of commercial refrigeration equipment and waterless residential air conditioning units. Territories open for agents due to changed sales policy and company expansion. Liberal commission. Give full information your first reply. BOX A5376, Air Conditioning & Refrigeration News.

REFRIGERATION SERVICEMAN to locate south central New York State, year 'round job. Commercial refrigeration and air conditioning. Salary $2.50 per hour. Minimum guarantee 40 hours a week. BOX A5388, Air Conditioning & Refrigeration News.

ENGINEER—DRAFTSMAN: Rapidly-expanding hardware manufacturing concern in Northern Illinois has opportunity for product draftsmen who have mechanical skill, vision and experience in designing so as to develop new refrigerator locks and hardware. Very interesting products. Worth inquiry. Write BOX A5391, Air Conditioning & Refrigeration News. Stating age, experience, etc.

MANUFACTURERS' REPRESENTATIVES wanted by well-established Eastern manufacturer of heating and air conditioning equipment for a number of high potential territories. Must be familiar with jobbers, wholesalers, and distributors of air conditioning, refrigeration, heating or allied equipment. Personal interviews will be arranged in your territory or at the Atlantic City Air Conditioning Exposition. Reply to BOX A5393, Air Conditioning & Refrigeration News or contact MR. WILLIAM H. PETERS, Shelbourne Hotel, Atlantic City.

NATIONALLY-KNOWN AA-A1 Wisconsin manufacturer of commercial refrigeration, restaurant and hotel equipment, beverage coolers and vendors requires services of diversified engineer for development and layout of cabinets, electrical requirements, tools, etc. General knowledge and some experience in refrigeration field required. Salary commensurate with capabilities with possibility of profit sharing. State full qualifications, references and present remuneration in first letter. Write BOX A5394, Air Conditioning & Refrigeration News.

AIR CONDITIONING and refrigeration sales supervisor: AAA-1 national manufacturer has opportunity for experienced sales engineer to contact franchised distributors and dealers in Northern Illinois and lower Wisconsin. Must have field sales experience; engineering background desirable. Good compensation, car furnished, other benefits as vacations, pension and health programs available for right man. BOX A5395, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WANTED MANUFACTURERS' and jobbers' surplus, outdated, or obsolete inventories of refrigeration items such as: expansion, water, shut-off valves, condensing units, relays, compressors, pressure controls, dehydrators, motors, tubing, fittings, etc. Call or write: ORegon 3-7210, COMMERCIAL CONTROLS SERVICE COMPANY, 257 East 3rd Street, New York 9, N. Y.

EQUIPMENT FOR SALE

NATIONALLY-FAMOUS HERMETIC units at fabulous discounts! Model P91 (⅛ h.p. pancake) $29.50. S88 (⅛ h.p.) $29.50. S64 (⅛ h.p.) $31.00. S54 (⅛ h.p.) $32.00. S44 (¼ h.p.) $33.00. S34 (½ h.p.) $35.00. Also complete unit assembly (less dome) for use with ⅛, ⅙, or ¼ h.p. dome, only $9.00. ⅛ h.p. static condensers, $1.10 each. All equipment brand new, ready for immediate shipment. MANN REFRIGERATION SUPPLY CO., 440 Lafayette St., New York, N. Y., GRamercy 3-8000.

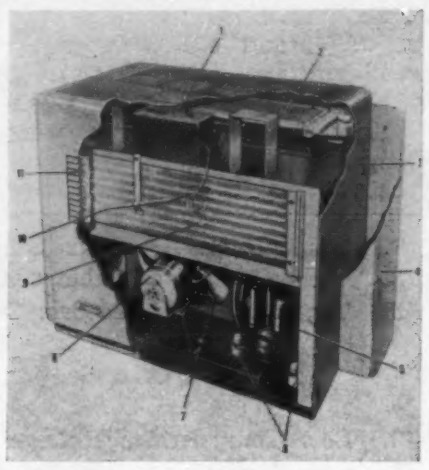
REFRIGERATION VALUES: Attention servicemen; send for our catalog of refrigeration parts; savings up to 50%. WALTER W. STARR REFRIGERATION SUPPLIES, 2833 Lincoln Ave., Chicago 13, Illinois.

FOR SALE: One 50-ton Marley water tower. One 40-ton Brunswick Carrier compressor with newly-wound motor. Two 15-ton air handling units with heating coils and spray humidification. All in excellent condition. Please reply giving your phone number and address, and we will phone you. BOX A5392, Air Conditioning & Refrigeration News.

MISCELLANEOUS

DOMESTIC CONTROLS and relays repaired equal to new at a small cost. New controls and relays also in stock. Write in for information. UNITED CONTROLS, 342 West 70th St., New York 23, N. Y.

For more information about products advertised on this page use Information Center, page 54.



PICTURED above is recently developed Type 920 recessed air conditioner by Mueller Climatrol Div. of Worthington Corp. which can be installed through the wall. The compact room-type air conditioner has a self-contained, air-cooled cooling unit with a built-in heating coil which operates off a central steam or hot water system. Numbered features in the cutaway view at right are: 1) operating controls; 2) heating coil; 3) finished cabinet; 4) pipe chases; 5) motor compressor assembly; 6) compressor mountings; 7) heat and moisture ejection; 8) condenser fan motor; 9) cooling coil; 10) thermostat sensing element: 11) return air filter.

Combination Heating, Cooling System Gives Year-Round Control In Multi-Unit Buildings

MILWAUKEE — Mueller Climatrol has announced a new combination heating and cooling unit for installation in multi-unit buildings, including hotels, office buildings and hospitals.

The compact room-type air conditioner has a self-contained, air-cooled cooling unit with a built-in heating coil which operates off the central steam or hot water system. Because the unit is installed through the wall, it is known as the "Type 920 Recessed Air Conditioner."

"In 1953," Mueller said, "the company introduced the first version of this unique unit, but it was applicable for cooling only. Known then as the Type 910 Recessed Summer Conditioner, thousands have been installed in homes, apartments, and other commercial applications and have proven efficient in field operations.

"The combination version, employing the heating coil, is much the same in design as the original model except for improvements that provide for more efficiency.

"The new Mueller Climatrol recessed units will usually replace the radiators in existing buildings. The are compact, only 30 in. high, 32½ in. wide, and protrude into the room only 15½ in.

"An opening is cut through the exterior wall for installing the flush mounted outside louver frame to the outside wall. This single access to the outside serves the dual purpose of supplying fresh air for air cooling at the condenser, and for discharging the warmed, humid air leaving the condenser."

Company officials point out a number of advantages with the new unit:

"(1) It provides individual thermostatic control of the heating and cooling in every room, since the unit contains a built-in dual-purpose thermostat.

"(2) The Type 920 recessed conditioner can be installed without disturbing tenants. Installation is fast, low cost. Only one tenant is disturbed at a time, and only for a short period.

"(3) The unit provides four important comfort functions: selector switch permits adjustments for cooling and dehumidifying, forced air heating, ventilation with outside air, and exhausting stale room air.

"(4) Since the air conditioning unit is air cooled and self-contained, it requires no water, piping, or drain.

"(5) The steam coil is located in such a manner that the refrigeration cycle may be installed or removed without disturbing the heating coil or piping.

"(6) The small exterior louver opening is attractive, flush with the outside of the building, and rust-proof.

"(7) The unit installs quickly, easily—no major changes to the steam system or piping.

"(8) Tests show low installation, operation, and maintenance costs. Thermostatic control of the heating insures major savings on steam costs.

"(9) The unit provides individual control of air distribution and velocity since outlet louvers are adjustable."

Controls on the new Mueller Climatrol unit are concealed but easily accessible, it was stated. They include a pushbutton selector switch and integral heating and cooling thermostat. The unit employs twin blowers for moving the air off the heating and cooling coils.

The outer casing is finished in a prime coat so that it can be repainted to match the room decor. Matching chases, to conceal the supply and return pipes and shut-off valve, are supplied.

Viking Air Conditioning Develops Carton Display

CLEVELAND — An aid for dealers and distributors to make the most of counter display space has been devised here by Viking Air Conditioning Div., National-U. S. Radiator Corp., the firm announced.

A shipping carton of vivid color, with invitations to "pick up your supply now," that converts into a counter display has been introduced by Viking. It is of heavy-duty corrugated cardboard with a white inner liner and two full-width top flaps.

To make the carton into a counter display, Viking stated,

simply slit the carton down the front at each corner, fold down and tuck under the outer flap, then lift the "pop-up" inner flap which has side supports to keep it upright. As the flaps are opened, the top layer of 5-plate packages of "Thirs-Tee" plates is exposed. Both flaps are imprinted with sales messages and colored arrows directing attention to the bright packages.

Two-dozen lots of the recently developed Thirs-Tees furnace dehumidifier plate replacement sets, made of a new sintered silica-porcelain material that resists "caking" on evaporating surfaces are contained inside. Copy on the plate packages is aimed at making them self-selling, Viking said.

American-Standard Sets Ross Heat Exchanger Div.

NEW YORK CITY—Formation of the Ross Heat Exchanger Div. of American Radiator & Standard Sanitary Corp. with headquarters in Buffalo was announced by Joseph A. Grazier, president of American-Standard.

The new division will conduct the operations in the heat exchanger field formerly carried on by Kewanee-Ross Corp., including the operation of the plant at 1407 West Ave. here.

Kewanee-Ross is being dissolved in accordance with the policy of divisionalizing American-Standard activities along major product lines, Grazier said.

At the same time, the Kewanee Boiler Div. is being established to conduct the steel boiler activities of the dissolved company.

Officers of the new Ross Heat Exchanger Div. are John C. Linsenmeyer, president; Richard S. Reade, executive vice president; John W. Gudgel, vice president, sales and marketing; and Townsend Tinker, vice president, engineering, research, and development.

Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

ARMY

Commanding Officer, Chicago QM Purchasing Center, 1819 West Pershing Rd., Chicago 9, Ill.

CONDENSING UNIT, Refrigerating, complete with controls and accessories, 7,850 B.t.u.—30 ea. and 10,650 B.t.u.—19 ea—IFB 56-137(B)—Bid Opening 29 Nov. 55.

Commanding Officer, Chicago QM Purchasing Center, 1819 West Pershing Rd., Chicago 9, Ill.

Advance Notice

Following Items are under IFB QM 11-009-56-164—Invitation for bid will be issued on or about 30 Nov. 55. Federal Specification 00-C-566C, dated 18 Jan. 1955 will be issued upon request only at the time invitation for bid is requested.

DISPENSER, DRINKING WATER, mechanically cooled, inverted bottle type, 1 faucet, 2.85 gallons per hour minimum cap., 83 ea.—DISPENSER, DRINKING WATER, mechanically cooled, pressure type, one bubbler, 9.5 gallons per hour minimum draw-off capacity, 145 ea.—DISPENSER, DRINKING WATER, mechanically cooled, pressure type, two glass fillers, 19 gallons per hour minimum draw-off capacity, 35 ea.—DISPENSER, DRINKING WATER, Pressure Type, two glass fillers, 28.5 gallons per hour minimum draw-off capacity, 11 ea.

NOTICE TO PROSPECTIVE BIDDERS: An additional quantity of 273 ea. is being reserved for Small Business under a Joint Determination. Negotiation for award of the exempted portion of this procurement will be conducted only with responsible small firms who submit responsive bids on the advertised portion at a unit price within 120 per cent of the highest award made.

AIR FORCE

Purchasing & Contracting Office, Sampson Air Force Base, Geneva, N. Y.

CASE DISPLAY, freezer cabinet, top opening, glass front, with automatic defrost, 12 cu. ft. net capacity, 80" long x 30" deep x 40" high. Blower type, circulating coil using not less than five adjustable dividers in display area. Storage capacity: 560 points or 260 quart packages w/self-contained compressor, 1 HP, air cooled to operate on 220V, 60 cyc., 1 ph. Case to be equipped with lighted superstructure designed with display shelf entire length of cabinet, similar to Frigidaire Model No. ICMR 12-2R. Cabinet dimensions shown above are approximate—3 ea.—IFB 30-616-56-49—Bid Opening 2 Dec. 55.

GENERAL SERVICES ADMINISTRATION

Business Service Center, General Services Adm., Region 10, 909 First Ave., Seattle 4, Wash.

MORTUARY REFRIGERATOR, TWO-BODY; Styrefoam Insulation—1 ea.—IFB SEO6-2550—Bid Opening 12-5-55.

General Services Administration, Business Service Center, Region 1, Boston, Mass.

NEW REFRIGERATED DRINKING WATER EQUIPMENT for U. S. Appraisers Stores, Boston, Mass.—Job—IFB BOS-56-109—Bid Opening 12-8-55.

General Services Administration, 19th & F Sts., N.W., Washington 25, D. C.

REFRIGERATING PLANT, compressors, condensers and cooling units for Buildings Nos. 4 & 9, Fredericksburg Magnetic Observatory, Camp A. P. Hill, Fredericksburg, Va. Approximately 350 Lineal Feet of piping & conduit in concrete duct from machine building to serviced buildings. Bidding material available at Room No. 1304, General Services Building, 19th & F Sts., N.W., Washington 25, D. C.—Phone Executive 3-4900, Extension 2397—Job—IFB 44-115—Bid Opening on Dec. 13, 55.

General Services Administration, Business Service Center, 114 Commerce St., Dallas 2, Texas.

AIR CONDITIONING COURT ROOM, Post Office and Court House, Beaumont, Texas—Job—IFB CR 7561-103—Bid Opening 12-6-55.

AIR CONDITIONING JUDGES CHAMBERS, Post Office and Court House, Lake Charles, La.—Job—IFB CR 7561-101—Bid Opening 12-6-55.

AIR CONDITIONING COURT ROOM, Post Office and Court House, Tulsa, Okla.—Job—IFB CR 7561-95—Bid Opening 12-13-55.

U. S. INFORMATION AGENCY

U. S. Information Agency, Procurement Branch, 1734 New York Ave., N.W., Washington, D. C.

Following Items AIR CONDITIONING UNITS Air Cooled 50 cycle A.C. are procured under IFB 56-112—Bid Opening 30 Nov. 55.

Five ton 400 volt 3 phase, 4 ea.—Three Ton 400 volt 3 phase, 1 ea.—1½ Ton 230 volt, single phase, 1 ea.—One Ton 230 volt, single phase, 2 ea.—¾ ton 230 volt, single phase, 4 ea.

HEY! IT'S FREE!
AND IN BOOTH 406, YOU CAN SEE THE VERY LATEST IN AIR CONDITIONING EQUIPMENT
See the new economy models!
See the new larger models!
See the other new developments that mean greater customer appeal for you in 1956!
See them all in Booth 406, All-Industry Show, Atlantic City.
Air and water cooled central air conditioning • Room coolers • Dehumidifiers • Other specialized equipment.
MANUFACTURERS OF SPECIALIZED REFRIGERATION SYSTEMS OF PROVEN CAPACITY.
ADDISON PRODUCTS COMPANY
dept. A-2, Addison, Michigan

Low Temp Cases--

(Concluded from Page 1, Col. 2)

other types of retail food store fixtures. Prepackaged frozen meats may become a major activity in retail food distribution.

In connection with this CRMA members declared that recent criticism from some elements of the frozen food industry to the effect that display case manufacturers were unable to supply sufficient equipment to meet the demand, and were derelict in developing multi-tiered cases to provide greater storage and display capacity without enlarging floor area has been disproved by the facts.

Not only are the industry's backlogs modest in extent, it was stated, but a number of multi-tiered frozen food display units are already on the market, and more are approaching the unveiling stage.

Another panel presented the results of an assigned analysis of the general "state of health" of the industry's dealer and distributor organization, turning in a highly favorable verdict. The average sales outlet, it was agreed, is still making money, and is enjoying good volume.

While the financing of instalment contracts presents a growing problem for many, chiefly because of the general tightening of credit among local commercial paper purchasers, most manufacturers are now in a position to offer satisfactory financing facilities through national finance companies.

It was pointed out, however, that acceptance of instalment paper is predicated on adequate cash down payments and maximum terms of 24 or 36 months, depending on the amount of the contract. It was reported that there has been almost universal adherence throughout the industry to established terms policies, regardless of whether contracts are locally financed or handled through national agencies.

What Ratios Show

"Conventional" closed-type display cases continued to decline, a further look at the ratios reveals. Small decreases were shown, too, by open single and double-duty display cases, closed vegetable refrigerators, and dairy refrigerators and wall boxes. Reach-in refrigerators lost ground, also.

Collected by Paul H. Sullivan, CRMA executive secretary, the data discloses that 29 cents out of every dollar being spent for commercial equipment is for low temperature equipment.

Open-type low temperature display cases accounted for 28.9% of the total dollar volume reported by CRMA members in the first nine months of this year, compared with 24.7% in 1954 and 20.7% in 1953.

Closed-type low temperature fixtures were the same as in 1954 (.4%), making the total for the whole low temperature display case category 29.3%.

Single-duty closed-type display cases (operating at normal refrigerator temperatures) dropped to 2.7% from 2.8% in 1954. Double-duty closed-type display cases also declined, falling to 5.4% from 6.6%.

Open, self-service single-duty display cases accounted for 5% of total dollar volume, compared with 6.2% in 1954. Open double-duty cases declined to 9.5% from 10.1% in 1954.

However, open multiple deck cases showed a slight gain, rising from 11% in 1954 to 11.7% in the first nine months of 1955. Total for all types of open, normal temperature cases was 26.2%, compared with 27.3% in 1954.

Open, single-duty vegetable cases rose to 5.6% from 4.7% in 1954. Open double-duty vegetable cases remained unchanged at 5.7% and closed vegetable refrigerators declined to 1.8% from 2.2%.

Reach-in refrigerators were 7%, a drop from the 9.4% figure posted the previous year. Dairy refrigerators and wall boxes experienced a small decline, from 2.4% in 1954 to 2.2% in the first nine months of this year. Walk-in coolers, with 6.7%, showed a slight gain over the 6.3% for the previous year.

1954-1955 Ratios of Various Types of Products to Total Commercial Refrigerator Shipments As Reported to Commercial Refrigerator Manufacturers Association

PRODUCT OR CLASSIFICATION	1954 (Year) %	1955 (9 Mos.) %
1. Single-Duty Display Cases, Closed	2.8	2.7
2. Double-Duty Display Cases, Closed	6.6	5.4
Total This Classification	9.4	8.1
3. Single-Duty Display Cases, Open	6.2	5.0
4. Double-Duty Display Cases, Open	10.1	9.5
5. Multiple-Deck Cases, Open	11.0	11.7*
Total This Classification	27.3	26.2
6. All Other Display Cases	.5	.4
Total All Above	37.2	34.7
7. Single-Duty Vegetable Cases, Open	4.7	5.6*
8. Double-Duty Vegetable Cases, Open	5.7	5.7
9. Vegetable Refrigerators, Closed	2.2	1.8
Total This Classification	12.6	13.1*
10. Low Temperature Refrigerators, Open	24.7	28.9*
11. Low Temperature Refrigerators, Closed	.4	.4
Total This Classification	25.1	29.3*
12. Upright Freezers	2.1	2.5*
13. Dairy Refrigerators, Wall Boxes, Etc.	2.4	2.2
14. Reach-In Refrigerators	9.4	7.0
15. Walk-In Coolers	6.3	6.7*
16. All Other C-R Equipment	4.9	4.5
	100.0	100.0

*Government shipments excluded from all totals.

Two of the New

INNER-FIN UNITS

ATLANTIC CITY AUDITORIUM Nov. 28 to Dec. 1

BOOTHS 323-4-5-6

you'll see at the Bush Booth!

'JF' JET-FLO UNIT COOLERS feature gleaming, hospital-clean stainless steel cases . . . completely non-ferrous construction.

'PFC' PROPELLER-FAN CONDENSERS provide the most practical method yet developed for condensing refrigerants without the use of water.

You'll want to have a good look at these latest additions to the complete BUSH line. Both incorporate famed Inner-Fin® coil construction . . . patented BUSH development that's revolutionized design of air conditioning and refrigeration units.

Some of the other BUSH units you'll want to see: 'CRH' REMOTE AIR CONDITIONERS for ceiling mounting. Used in hotels, motels, etc. . . . wherever wall and floor space is at a premium.

LOW TEMPERATURE UNITS: 'HG' Hot Gas Defrost and 'ED' Electric Defrost Unit Coolers. An operating demonstrator will let you see for yourself the superior operating efficiency of these new sensations of the low temperature field.

'GD' Glycol Defrost Product Cooler in simulated operation.

INNER-FIN EVAPORATIVE CONDENSERS AND COOLING TOWERS • INNER-FIN AIR CONDITIONING COILS • MULTIZONE UNIT • UNDER-THE-WINDOW AIR CONDITIONING UNITS • UNIT COOLERS

Be sure to see the industry's most complete line . . . at the Bush booth #323, 4, 5, 6.

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BUSH MANUFACTURING COMPANY • West Hartford 10, Connecticut

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For more information about products advertised on this page use Information Center, page 54.